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(54) Title: TRACKING AND LOGISTICS MANAGEMENT SYSTEM AND METHOD

(57) Abstract: A system for tracking containers for customer shipments using services from third party service providers, comprising a host management system. The host management system allows third party service providers and customers to enter in accounts containing information including preferences for shipping and/or services. The customer logs into the host management system through a network interface to enter in a shipment order. The host management system allows the customer to provide information concerning the shipment to ensure that the shipment can be performed and if any special services are needed from third party service providers. The customer can either choose their own third party service providers or request quotes from third party service providers having a pre-established relationship with the host management system. The host management system receives tracking and other information concerning the shipment and automatically notifies the customer and third party service providers providing services for the customer shipment of the shipment status so that any appropriate actions needed can be reported and/or taken.

TRACKING AND LOGISTICS MANAGEMENT SYSTEM AND METHOD

Field of the Invention

The present invention relates to a system and method for providing tracking and logistics management for shipment of goods.

Background of the Invention

Many shipping companies provide shipping service for goods and materials. Additionally, these shipping companies may place tracking information on the container housing the shipped goods so that the container can be tracked during shipment at various points. One common type of marking is a bar code that is placed on the exterior of the container and is scanned by optical readers. This allows the shipping company to determine the last geographic location of the container as it moves between the origination and destination points and to monitor whether the goods inside the container are on time, late, or somehow misplaced.

Tracking containers for shipments may be advantageous for several reasons. For instance, the container may have been misrouted or been placed on the incorrect airline to reach its destination. The container's last location can be ascertained since it contained information read by a unit during the journey of the container. The advantages of tracking the position of the goods are many and therefore have become commonplace throughout the shipping industry.

However, such tracking system cannot track the real-time location of the container and cannot receive status information concerning the container. Some sophisticated containers have management units on board for managing parameters such as temperature, humidity and pressure. Tracking devices are associated with the container that transmit and receive various types of communication signals, such as electro-magnetic and/or radio frequency signals, for determining the geographic position.

Additionally tracking system have a complex software tracking system that keeps information about the locations of the shipments by keeping track of the containers. Container information is reported into the software tracking system for access by customers. However, with ever increasing improvements in information systems and data transfers, it is possible to improve such software tracking system so that it contains access to a multitude of third party providers so that shipment orders can be made in one session for a variety of ancillary services relating to shipping.

Therefore, it is an object of the present invention to provide a software tracking system and method for containers used in shipping goods and materials that provides that ability to link in third party service providers to provide ancillary services to customer for shipping and to allows such third party suppliers to gain access to such shipments involving their services for a variety of reasons.

Summary of the Invention

The present invention is directed towards a management system that allows a customer to place a shipment order entry. Preferably, the management system is a software system that is accessible from remote locations via network connections or in other manners remotely, such as by modem or frequency communication.

A container with a tracking and communications device is used for shipments. The tracking device is adapted to receive signals regarding the location of the container, and thereby communicating such location and other status information, such as temperature, humidity, and pressure of the container, to the management system.

A customer pre-establishes an account with information about the customer and information regarding preferences for shipments. The customer logs into the management system to place a request for a shipment. The customer interacts with the management system to place such order indicating information such as the origination, destination of the shipment, and any other special handling requirements for the shipment. The customer can also use the management system to arrange ancillary services relating to the shipment such as insurance, financing, special containers, the shipping provider, and customs handling so that the customer does not have to arrange for such services by interacting with other system and companies.

The management system uses such information to determine shipment possibilities to present to the customer for confirmation. The management

system can either provide such services regarding the shipment itself or by using information from third party service providers by using information from pre-defined accounts. The management system uses the information from such accounts to determine which third party service providers to query for provision of services. Third party service providers are offered as part of the shipment order to the customer based on the shipment and other information defined by the customer. The management system allows the customer to confirm the order, including an accounting of costs for all services including shipping, and the management system initiates the shipping process. A tracking number is associated with the shipment and the container(s) holding the shipment so that the shipment can be tracked. This tracking number is also communicated to any third party service providers involved in the customer shipment for tracking purposes.

Once the container begins its journey, it communicates its positioning information and status to the management system. The management system updates information about the shipment based on the container information and sends automatic notifications to the customer and/or third party service providers concerning the shipment. Also, the customer and/or third party service provider can log into the management system on their own initiative to check the location and status of a shipment.

Brief Description of the Drawings

Figure 1 is a perspective view of a container;

Figure 2 is a schematic illustration of the tracking device attached to the container of the present invention;

Figure 3 is a schematic representation of a global positioning system used by the tracking device to determine the geographic position of the container;

Figure 4 is a schematic representation of the host management system;

Figure 5 is a schematic representation of data communication between the host management system and the client system;

Figure 6 is a schematic representation of a customer account setup screen;

Figure 7 is a schematic representation of an insurance company account setup screen;

Figure 8 is a schematic representation of a shipping container company account setup screen;

Figure 9 is a schematic representation of a shipping provider account setup screen;

Figure 10 is a schematic representation of a financial company account setup screen;

Figure 11 is a schematic representation of a customs handling provider account setup screen;

Figure 12 is a schematic representation of a customer log-in screen;

Figure 13 is a schematic representation of a system choices screen;

Figure 14 is a schematic representation of a customer shipment order entry screen;

Figure 15 is a schematic representation of a customer shipment order finalization screen;

Figure 16 is a schematic representation of tracking;

Figure 17 is a schematic representation of monitoring; and

Figure 18 is a schematic representation of billing.

Detailed Description of the Invention

In the following description, like reference characters designate like or corresponding parts throughout the several views. Also, in the following description, it is to be understood that such terms as "forward", "rearward", "left", "right", "upwardly", "downwardly", and the like are words of convenience and are not to be construed as limiting terms.

Container, Tracking Device, and Positioning

Referring now to the drawings, it will be understood that the illustrations are for the purpose of describing a preferred embodiment of the invention and are not intended to limit the invention thereto.

As illustrated in Figure 1, a container 10 is provided that is especially suited for the cargo hold of an aircraft, such as containers manufactured and distributed by Envirotainer Group Companies. A tracking device 100 is associated with the container 10 for determining its geographic position during

the shipping process. The tracking device 100 may be placed internally within the container 10, or the tracking device 100 may be positioned on an outer surface. The container 10 may be placed on transportations vessels such as aircraft for shipment purposes. US Patent Application No. 09/542,772, entitled "METHOD AND APPARATUS FOR DETECTING A CONTAINER PROXIMATE TO A TRANSPORTATION VESSEL HOLD", filed on April 4, 2000, discloses such a container with a tracking device that reports the location of the container.

Container 10 may take a variety of forms depending upon the type of materials and goods being shipped. Container 10 may also be constructed to provide for temperature sensitive materials that range from insulated packaging, refrigeration units using dry ice 20, and thermostat equipped containers 30 with refrigeration and heating systems. One skilled in the art will understand that there are a plethora of containers and many different types of transportation vessels such as aircraft, ships, and trains all applicable to the present invention.

The tracking device 100 is schematically illustrated in Figure 2. A control system 101 includes a microprocessor 102 operatively connected with a memory 104, an input/output interface 106, and a timer circuit 108. The microprocessor 102 interfaces with devices outside the control system 101 through the input/output interface 106. If the microprocessor 102 needs to carry out instructions or operations based on time, the microprocessor 102 uses the timer circuit 108.

The tracking device 100 also includes a receiver 118, also referred to as a global positioning system (GPS) receiver 118, and the two terms are used interchangeably herein. The GPS receiver 118 receives electronic signals containing positioning information representing the location of the tracking device 100 and, therefore, the location of the container 10. The GPS receiver 118 may be configured to receive other types of remote transmission other than positioning information, thereby providing information reception capabilities. One example of a positioning system 118 is described in U.S. Patent No. 5,648,763, incorporated herein by reference in its entirety.

The positioning information is received by the microprocessor 102 through the input/output interface 106. The microprocessor 102 may store the positioning information in memory 104. The microprocessor 102 may also send the positioning information received from the GPS receiver 118 concerning the location of the container 10 remotely to a transmitter 112. The transmitter 112 communicates the positioning information and/or other information concerning the container 10 to a remote site 130 or other type of host computer. The transmitter 112 may transmit positioning information by a wired communication such as a telephone modem, or it may transmit such information wirelessly through use of a cellular phone modem. Alternatively, the transmitter 112 may send out positioning information to the remote site 130 in the form of frequency communication signals to devices such as satellites or radio-frequency devices.

Figure 3 illustrates one embodiment of a GPS system 200 as a space-based radio positioning network for providing users equipped with suitable

receivers highly accurate position, velocity, and time (PVT) information. The illustrated space-based embodiment of the GPS system 200 includes a constellation of GPS satellites 201 in non-geosynchronous twelve-hour orbits around the earth. The GPS satellites 201 are located in six orbital planes 202 with four of the GPS satellites 201 in each plane, plus a number of "on orbit" spare satellites (not shown) for redundancy.

GPS position determination is based upon a concept referred to as time of arrival (TOA) ranging. Each of the orbiting GPS satellites 201 broadcasts spread spectrum microwave signals encoded with positioning data and satellite ephemeris information. The signals are broadcast on essentially two frequencies at precisely known times and at precisely known intervals. The signals are encoded with their precise time of transmission.

The tracking device 100 receives the signals with the GPS receiver 118. The GPS receiver 118 is designed to time the signals and to demodulate the GPS satellite 201 orbital data contained in the signals. Using the orbital data, the GPS receiver 118 determines the time between transmission of the signal by the GPS satellite 201 and reception by the GPS receiver 118. Multiplying this by the speed of light gives what is termed the "pseudo range measurement" of that satellite. If a clock within the GPS receiver 118 were perfect, this would be the range measurement for that GPS satellite 201, but the imperfection of the clock causes it to differ by the time offset between actual time and receiver time. Thus, the measurement is called a pseudo range, rather than a range. However, the time offset is common to the pseudo range measurements of all the satellites.

By determining the pseudo ranges of four or more GPS satellites 201, the GPS receiver 118 is able to determine its location in three dimensions, as well the time offset. Thus, a user equipped with a proper GPS receiver 118 is able to determine his PVT with great accuracy. The GPS receiver 118 in the present invention determines positioning information accurately when three or more satellite signals are received, but it is still possible for the GPS receiver 118 to successfully determine location from positioning information from two or less GPS satellites 201. This technology is well known, such as that disclosed in U.S. Patent No. 6,031,488, incorporated herein by reference in its entirety.

The tracking device 100 also includes a local access port 122. A computing device such as a laptop computer with the proper software can access the tracking device 100 electronically by connecting to the local access port 122 for reasons described below.

A power system 110 supplies power to tracking device 100 components for executing the tracking functions. The power system 110 is contained within the tracking device 100 so that tracking functions can operate regardless of whether the tracking device 100 is in the presence of an external power source, but the power system 110 may also be connected to the aircraft power once the container 10 is loaded onto the aircraft 50. The microprocessor 102 controls which devices within the tracking device 100 receive power by controlling the distribution of the power system 110.

System Configuration

As illustrated in Figure 4, the present invention includes a host management system 300 that gathers information concerning the container(s) 10. The host management system 300 collects different types of information concerning the container(s) 10 to provide a variety of functions as described in more detail below. The host management system 300 also allows remote access to this information by client systems 330 and other computer systems, also described in more detail below. The remote site 130 described previously above is the host management system 300 described herein.

The host management system 300 includes a host server 302 that interfaces with a tracking system 308 to receive positioning information and other information concerning the container 10 such as the temperature, humidity, or pressure (hereinafter, collectively referred to as "container information") and to transmit instructions and other information back to the container(s) 10. The tracking system includes a receiver device 310 to receive container information transmitted by the container transmitter 112 whereby such container information is then transferred to the server 302. The tracking system 308 also includes a transmitter 312 that transmits information and instructions from the server 302 back to the container(s) 10 to the container receiver 118 when desired. The transmitter 312 may use a satellite system as described above in Figure 3 for relaying information to the containers(s) 10 or through other remote communications such as modem or other electronic or frequency communication.

The host management system 300 also includes a data storage facility 306 to allow the server 302 to store and retrieve data concerning the container information and other system information used during operation. Preferably, the data storage facility 306 is non-volatile memory that is backed-up periodically by the server through use of a tape driver or other storage medium to ensure that data is not lost permanently.

Figure 5 illustrates how the server 302 interacts with authorized client systems 330 to gain access to the host management system 300 to ascertain container information and to provide a variety of other functionalities as described below in more detail. In the preferred embodiment, the host management system 300 exchanges information with the client system 330 through use of the Internet. The host server 302 is capable of transmitting information to the client system 330 in a mark-up language for reception by the client system 330. The client system 330 also includes a client browser 333 that is operatively associated with the client server 332 for accessing and representation of XML-formatted data by human interaction.

Similarly, the server 302 is capable of receiving information is a mark-up language formal from the client system 330. For this type of system data transfer, it is common to embed Transmission Control Protocol/Internet Protocol (TCP/IP) networking and a service, such as a Hyper-Text Transfer Protocol (HTTP), in the server 302 and the client system 330 to allow them to communicate via a mark-up language compliant Web browser such as hypertext mark-up language (HTML). This is advantageous for several reasons. First, the

server 302 and the client system 330 can be managed locally and directly by many Web browser applications using direct connection interfaces, including but not limited to the Point-to-Point Protocol (PPP), which allows TCP/IP communication over standard RS-232-compliant serial interfaces commonly found on portable computing devices. Second, remote management of such devices is achievable over any network—including the Internet—as long as it provides the TCP/IP interface.

HTML is designed primarily for visual representation of data, and its formatting combines information, possibly comprised of disparate data items, into one or more strings of text having associated formatting "tags." These tags define how the corresponding data should be formatted for visual display but provide no meaning regarding the underlying data types represented by the strings of text. It is desired in the present invention for the host management system 300 and the client system 330 to be able to communicate efficiently and on an interactive basis such that information transferred between the two can be specifically identified as to the type of data and its meaning. While use of HTML may be used to provide this communication, HTML, due to its limitations of not including embedded data type information, cannot provide the type of data transfer for the preferred embodiment of the present invention.

Therefore, the preferred embodiment uses a newer generation mark-up language designed with data-type aware information transfer in mind called eXtended Markup Language (XML). Data-type aware XML tags define associated data and may be extended to define complex data structures. XML-

formatted data comprises one or more "elements" indicated by a start tag, an end tag, and intervening data. Start and end tags describe the data between them, while the data itself defines the value of the element. Thus, an XML element relating to the positioning information of container 10 might appear as "<containerID>345687904</containerID>." Here, the "<container ID>" represents the start tag, "</containerID>" represents the end tag, and the element "containerID" has the value "345687904" representing an identification number for the container 10. Also, elements can contain one or more attributes. Thus, <containerID type="Envirotainer">345687904</containerID> defines a container type attribute for the container 10 with the particular identification 34568904. Elements may be nested to form more complex data structures as shown in the example below.

```
<containers>

    <container>
        <containerID>34568904</containerID >
        <type>Envirotainer </type>
        <temperature-controlled>Yes</temperature-controlled>
        <last-reported location>Denver</last-reported location>
    </container>

</containers>
```

The above XML illustrates one "container" element in a larger "containers" element. The element "containers" may include any number of individual container entries. Parsing the "containers" structure to extract individual "container" entries simply entails parsing the overall data set based on the start and end tags. From this simplistic example, one skilled in the art will readily appreciate the utility of XML as applied to data transfers when that data must be

translated into machine or binary format for subsequent processing by one or both such computer systems.

Thus, either the host management system 300 or the client system 330 receiving XML formatted data can easily delineate one data item from the next, and easily determine data types, based on processing the XML tags. Moreover, XML-formatted data may be conveniently formatted for visual display using a XML style-sheet language (XSL). An XML data transfer between the host management system 300 and the client system 330 simplifies the processing associated with converting received data into a format usable by either the local device or the remote system.

Accordingly, the present invention includes a host management system 300 that includes a server 302 that is XML compliant for the above-mentioned reasons for enhanced remote access and data transfer capabilities. The server 302 transmits and receives XML-formatted data to and from the client server 332. The ability of host management system 300 to send and receive XML-formatted data permits the client system 330 to efficiently transfer data to the host management system 300 on both an interactive and non-interactive basis. "Interactive interfacing" is defined as human initiated access. When interactive interfacing is desired between the host management system 300 and the client system 330, the XML data received by the client system 330 then may be formatted for display to a human operator using a browser using an XSL. "Non-interactive interfacing" is defined as automated interfacing between the host

management system 300 and the client system 330 during their operations without an initiation by a human for such to occur.

It is noted that while an preferred embodiment of the present invention uses XML-formatted data as its data type aware mark-up language and XSL as its data type aware style sheet, the present invention may be accomplished using data type aware mark-up languages and style sheets other than XML and XSL, respectively. Therefore, the present invention is not limited to XML or XSL hereto.

XML files may be transferred between the host management system 300 and the client system 330 using several known techniques. If the client system 330 is HyperText Transfer Protocol (HTTP)-compatible, then it may use HTTP for Universal Resource Locator (URL) named request response file transfers. (URLs uniquely specify named resources on the Internet.) If the client system 330 supports other traditional standards, such as File Transfer Protocol (FTP), then these standards may be used for exchanging information. Of course, proprietary transfer protocols unique to certain types of client system 330 may be utilized by providing the necessary hosting software in the host management system 300. Of these choices, HTTP-based file transfer represents a preferred method because it easily handles text file transfers. Further, an HTTP request from the client system 330 may be used to trigger an internal action within the host management system 300, as is well known in regard to Common Gateway Interface (CGI) scripting, and server-side applet execution.

Every client system 330 may be expected to have the full set of capabilities necessary for supporting operations as identified for this exemplary embodiment such that data transfer is always performed using XML-formatted data thereby alleviating the need for proprietary or multiple data handling subsystems within the host management system 300. However, the present invention is not limited to use of the Internet and HTTPs, including XML, to provide communications between the host management system 300 and the client system 330; as such the present invention should not be limited to such hereto.

Account Setup

The host management system 300 provides a variety of functions for shipment orders made by customers. When orders are placed, as discussed in more detail below, the host management system 300 uses a variety of services to fulfill the shipment order. Some of these services may be through use of third parties though cooperative relationships. Therefore, it may be necessary to have established accounts with such third parties, including predefined and stored information, to ensure that the host management system 300 uses the resources available from these third parties in the proper and most efficient manner possible.

Customer Account Setup

The host management system 300 allows customers that will be using such services to ship goods in containers 10 to set up an account to be stored in the host management system 300 data storage facility 306. The allows a customer to enter in information needed for use of the host management system 300 beforehand so that all necessary and relevant information needed by the host management system 300 is obtained and stored. In this manner, information is pre-stored in the data storage facility 306 for the customer so that certain types of information do not have to be entered into the system again unless change is needed.

Figure 6 illustrates an example of a customer account data entry screen provided by the host management system 300 to set up a customer account. The customer provides the name 401 which can be an individual name or the name of a company and the billing address comprised of the street address 402, city 404, state 406, and zip code 408. If the shipping address is different from the company address, the street address 410, city 412, state 414, and zip code 416 are additionally provided. The shipping address is where invoices and billings for shipments are sent to the customer. The invoices are sent to the attention of the name in the contact 418 space provided and at the contact phone number 420 provided. An extension 422 may also be entered if the contact phone number 420 is not a direct dial line. The customer may also enter in an email address 424 for notifications concerning shipments and other relevant information concerning the host management system 300. The customer enters

a password 417 so that future access to information concerning goods shipped and the customer's account for any changes desired can be performed in a secure manner.

The customer is also allowed to enter in preferences for account handling and shipping that are used as default settings for shipments or use of services unless change or overridden. The customer can choose to set up an IP address 426 for the host management system 300 to log into to communicate with a computer at the client system 330 directly in lieu of human order entry only. The host management system 300 as part of the account setup will attempt to connect to the IP address 426 to determine if a connection was successful. If not, the customer contact 418 will be notified of such.

The customer is allowed to enter in other third parties' names and account numbers for shipment of its goods. By doing so, the customer is giving permission to these third parties to access information about the customers' goods shipped by that customer from the host management system 300. For example, the customer may enter in their insurance company 428 and insurance account number 430 that is insuring goods shipped so that this insurance company will be notified about any special status regarding the goods shipped.

A financing company 432 and a finance company account number 434 are provided for the customer to input if the customer has financed an aspect of the goods shipment, such as financing as part of inventory or financing of the shipment itself, may also provided. In this manner, the third party service

provider information can be linked to the particular goods shipped for a variety of reasons and advantages.

Linking of such information to the shipped goods may be advantageous to the customer in that third party service provider may give special rates when particular measures and safeguards are put into place by the customer that allow the third parties to have information concerning the goods shipped. For example, insurance companies may give a lower insurance rate if the insurance company is notified about the status of goods shipped, such as their location, due to the fact that providing such information and shipment method may possibly minimize loss, casualty, and/or facilitate recovery of stolen goods shipped. Similarly, finance companies may give better financing rates for shipping or enter into inventory loans with companies more easily if such finance companies are informed by the data management system 300 of information concerning the goods such as their delivery points and/or location.

For example, the host management system 300 can notify the insurance company of the location of goods during shipment at various delivery points during the shipping process, including final delivery. It is important to insurance companies that confirmation of final delivery of goods at their intended destination be known so that the insurance company can be relieved of further responsibility with respect to the goods. Such notification can be performed by ground mail, fax, electronic communication, or other forms of communications. Likewise, the financing company may have a security interest in the goods shipped, and access to knowledge of their location and whereabouts may cause

the financing company to give better interest rates since the possibility of losses without recovery of the goods are minimized.

The customer can select a preferred shipping provider 435 if he so desires. If the customer enters a preferred shipping provider 435 and the host management system 300 is not able to use such shipping supplier, then the customer will not be allowed to finalize the account entry. The host management system 300 will inform the customer that the preferred shipping provider 435 is not possible. One alternative manner to prevent this problem is to provide a pull down list of potential preferred shipping provider 435 so that the customer can only choose one from the list of pre-selected entries. In this manner, the host management system 300 is guaranteed to be able to use such shipping supplier since the host management system 300 has provided the list of choices to the customer.

The customer may also set as a preference the default type of shipping method 436 desired. For example, the customer may always desire overnight shipment, two-day shipment, one week, or lowest price to ship within a certain number of days. The customer is allowed to set the default shipping method 436 desired so that this information does not have to be provided when goods are shipped using the host management system 300 unless otherwise specified and/or overridden.

Additionally, the customer may set up a container type 438 desired for shipping if the customer has a particular preference. For example, some goods are temperature sensitive and/or humidity sensitive, thereby requiring a special

type of container 10 in which to ship the goods. An example of this type of container 10 is manufactured and distributed by Envirotainer Group Companies and can be found at http://www.envirotainer.com incorporated herein by reference in its entirety. A particular product may only stay fresh at certain temperatures during shipment and/or may be susceptible to bacterial and other unwanted growths if the temperature is not regulated. Therefore, it may be advantageous to use a shipment container 10 that provides temperature management for such reasons. Certain types of containers 10 may be especially suited for shipment of fragile goods so that damage potential can be minimized.

Products shipped abroad and between different countries are subject to customs regulations of the country where the goods shipped originated and are destined. The user can indicate whether he desires the host management system 300 to provide custom handling and clearance 440 for the shipped goods as the default setting by indicating so on the account form. Specifics into the manner and method in which the host management system 300 interacts with customs to provide seamless clearance of shipped goods is discussed in more detail below.

The customer may indicate that shipped goods may be rerouted 442 without permission by the host management system 300 if the goods can still be delivered according to the itinerary given to the customer during order entry discussed in more detail below. By doing so, the host management system 300 may provide a discount to the customer for shipping goods regardless of whether

the goods shipped are actually rerouted, or only if the goods are rerouted providing a credit to the customer for such permission.

Another customer preference option that may be offered to the customer is the providing of suggestive selling services 444 related to shipment of goods such as insurance and financing. The customer may be given a discount for shipment of goods if the customer allows the host management system 300 to provide such suggestive selling services. Alternatively, the host computer system 300 may provide such suggestive services to the customer without giving the customer the option to pick whether such suggestive services are desired.

If the customer does not already have insurance for the goods being shipped, the customer can request a insurance quote 446 for the goods shipped and the amount to be insured 448. When the customer order is submitted, the host management system 300 will request quotes from insurance companies based on insurance account established with the host management system 300 according to the predefined insurance company preferences with respect to the goods shipped. If the goods being shipped and other preferences are met in accordance with the insurance companies' predefined preferences in their account, the host management system 300 will request a quote from the insurance companies' client system 330 and such quote will be made available to the customer when orders are placed during the order entry phase, discussed in more detail below.

Similarly, the customer can request a credit line 450 and amount 452 during the customer account setup for use for payment for shipping services.

When the customer order is submitted, the host management system 300 will request quotes from financial companies based on finance company accounts established with the host management system 300 according to the predefined financial account preferences with respect to the goods shipped. If the goods being shipped and other preferences are met in accordance with the financial companies' predefined preferences in their account, the host management system 300 will request a quote from the financial companies' client system 330 and such quote will be made available to the customer when orders are placed during the order entry phase, as discussed in more detail below.

After all information is provided by the customer, the customer selects the "SUBMIT" button 447 to submit the information to the host management system 300. The host management system 300 processes the customer account information and returns to the customer an account number to be used for all shipping services in the future. This number is used for invoicing purposes to the customer. Any payments by the customer are posted to this account number in the host management system 300 in order to store payment of a customer's shipping order so that the status of the order can be shown as paid when accessed.

It should be noted that the customer account information discussed above, including preferences, is exemplary of the present invention and may be optional depending on the particular configuration of the host management system 300. Other customer information and preferences may be entered into the customer account to provide default settings for customer information and preferences not

specifically discussed herein. The present invention should not be limited to the inclusion of any particular customer account information hereto.

Third Party Service Providers

The host management system 300 allows provides relationships with third party service providers in order to fulfill a customer's shipment order. For instance, the host management system 300 may query an insurance company for a quote for insuring the customer's shipment. A financial company may be queried to provide financing for payement of the customer's shipment. Each of these third parties that provides services accessible by the host management system 300 are called "third party service providers" herein. Each third party service provider logs in information about its services into an account in the host management system 300 so that such services are accessible to the host management system 300 when needed to fulfill a customer's shipment order.

Insurance Company Account Setup

Additionally, if an insurance company wishes the host management system 300 to interact with the insurance company in a particular manner and for the insurance company to be able to act as a client system 330 having to the host management system 300, the insurance company can also set up an account. Setup of an insurance account not only allows the insurance company to gain access to the host management system 300 to obtain information about goods insured that are shipped by customers, but also allows the insurance

company to set up information so that the host management system 300 can offer services from that particular insurance company to customers shipping goods that have not already insured their goods. For instance, the customer may not have a default setting for an insurance company when setting up an account as discussed in Figure 6 above or the customer may choose to override his default insurance company when shipping goods. The data management system 300 may allow the customer to request insurance from the insurance companies' part of the data management system 300 when an order for shipping goods is made or may suggest different insurance plans to the customer as suggestive selling services that are not initiated by the shipping customer. Such insurance service access may be allowed by the data management system 300 if a fee is provided. Such fee may include an initial hook-up fee, a flat-rate fee on a periodic basis, a fee based on customers that engage the services of such insurance company, or any combination thereof when shipping goods through use of the host management system 300.

Figure 7 illustrates an example of an insurance account data entry screen provided by the host management system 300 to set up an insurance account. The insurance provider provides the name of the insurance company 450 the street address 452, city 454, state 456, and zip code 458. Any special correspondence or inquiries are sent to the attention of the contact 460 at the contact phone number 462 provided. An extension 463 may also be entered in if the contact phone number 462 is not a direct dial line. The insurance company may also enter in an email address 464 for notifications concerning shipments

and other relevant information concerning the host management system 300. The insurance company also enters a password 466 so that future access to information concerning goods shipped and the customer's account for any changes desired can be performed in a secure manner just as described above for the customer account setup above.

The insurance company can choose to setup an IP address 473 for the host management system 300 to log into to communicate with the computer system as the client system 300 directly in lieu of human order entry only. In this manner, information transferred between the host management system 300 and insurance company occurs at a high-speed rate without need for human interaction. The host management system 300 as part of the insurance account setup will attempt to connect to the IP address 518 to determine if a connection was successful. If not, the insurance company contact 510 will be notified of such.

The insurance account setup information also includes the ability to predefine preferences that the insurance company wishes to set up as defaults. Just as in the customer account setup discussed above, the insurance company can change the information in its account and/or override default handling parameters.

The insurance company can provide a preference type of goods that it will not insure 468. The host management system 300 will not request a quote from the particular insurance company as part of the suggestive selling feature of the present invention, discussed in more detail below, if the goods entered into the

host management system 300 by customers requesting shipment are in one of the selected categories. Also, if a customer selects a particular insurance to insure its shipment of goods, whether the selection be due to the insurance company name 428 in the preferences of the customer's account or entered in at the time of shipment request entry, the host management system 300 will check the type of goods being shipped and the particular insurance entered by the customer, if any, to that insurance company's type of goods it will not insure 468 preference in its account. If the insurance company does not have an account with the host management system 300, this check is not performed by the host management system 300.

If the insurance company has an account with the host management system 300 and if the insurance company name 428 entered by the customer for goods being shipped is listed in that particular insurance company's type of goods it will not insure 468 preference, the host management system 300 will notify the customer of this, allowing the customer to either change his insurance company entry, remove the insurance company information, or allow the customer to have the host management system 300 find quotes from insurance companies that will insure the particular type of goods being shipped. If the customer leaves the original insurance company in the insurance company name profile, the host management system 300 will accept the order, again notify the customer of the fact that the particular insurance company has indicated a preference to not insure the particular type of goods being shipped, and will notify

the insurance company based on its contact name 418 and the email address 464 stored in the insurance company's account of this discrepancy.

The insurance company can provide a preference that it will not insure goods that travel outside the United States 472. Insurance companies may not have the resources to provide insurance for goods shipped outside the United States or a particular country due to resources required should the goods not reach their final destination successfully.

If the insurance company does not wish to insure goods that travel outside the United States, the host management system 300 will not request a quote from the particular insurance company as part of the suggestive selling feature of the present invention, discussed in more detail below, if the goods entered in to the host management system 300 by customers requesting shipment includes travel that occurs outside the of United States.

If a customer selects a particular insurance to insure its shipment of goods that includes a route of travel outside the United States, whether the selection be due to the insurance company name 428 in the preferences of the customer's account or entered in at the time of shipment request entry, the host management system 300 will check the route of the goods being shipped. The host management system 300 will check the particular insurance company entered by the customer, if any, to that insurance company's preference for insurance of goods that travel outside the United States 472 preference in its account. If the insurance company does not have an account with the host management system 300, this check is not performed by the host management

system 300. If the insurance company has an account with the host management system 300, the host management system 300 will check to see if the goods being requested for shipment by the customer include travel outside the United States. If so, and if the customer has entered in that insurance company as the insurer, the host management system 300 will notify the customer of this discrepancy allowing the customer to either change his insurance company entry, remove the insurance company information, or allow the customer to have the host management system 300 find quotes from insurance companies that will insure the particular type of goods being shipped. If the customer leaves the original insurance company in the insurance company name profile, the host management system 300 will accept the order, again notify the customer of the fact that the particular insurance company has indicated a preference to not insure goods being shipped that travel outside the United States, and will notify the insurance company based on its contact name 460 and the email address 464 stored in the insurance company's account of the discrepancy.

As part of the suggestive service feature of the present invention, discussed in more detail below, the insurance company can provide a preference of whether the host management system 300 should request a quote for insurance for particular goods being request for shipment by a customer for a particular shipment order 476 if the customer has not indicated a insurance company and/or the customer requests an insurance quote. If the insurance company indicates "NO," the host management system 300 will not request a

quote from that particular insurance company. If the insurance company indicates "YES," the host management system 300 will request a quote from that particular insurance company when requested by the customer and/or when the customer has not already indicated an insurance company in its order request unless other preference criteria in the insurance company's account is not met.

As part of the suggestive service feature of the present invention, discussed in more detail below, the insurance company can provide a preference of the minimal credit rating of a company 450 requesting shipment of goods. If the customer requests an insurance quote for insurance for shipment of goods, the host management system 300 will determine the credit rating of the customer. The host management system 300 will provide the details of the shipment order to all insurance companies having an insurance account in the host management system 300 that include a credit rating in the minimal credit rating preference 474 that is equal to or below the customer credit rating before it will send a request to the insurance company to provide a quote.

Also, the insurance company may indicate a preference for the minimal credit rating preference 474 of "NONE," meaning that the host management system 300 will not avoid requesting a quote for that particular insurance company based on the customer's credit rating. However, the insurance prices quoted back to the host management system 300 which are in turn given to the customer for possible selection may vary in price depending on the credit rating of the customer. For instance, a customer with a credit rating of AAA may

receive a lower quote from a particular insurance company that a customer with a credit rating of B.

Also as part of the insurance company's preferences, the insurance company can indicate whether the host management system 300 should send automatic notifications about goods that the company has insured 478. The insurance company is automatically linked to any goods insured in the host management system 300. The host management system 300 receives information about the goods being shipped including location of the container containing the goods being shipped. Depending on the preference selected, if any, the host management system 300 will send an automatic notification to the insurance company of the goods insured when the goods are traveling off their predetermined route, the goods reach a destination point during the shipment, and/or the goods reach their final destination. Such information may be helpful to insurance companies to minimize loses if the goods are off-route. Such information may also be help to insurance companies to free up and close current policies so that such insurance can be made available for other shipments since insurance companies usually have a maximum amount of insurance they are willing to extend before either acquiring reinsurance and/or not extending any further insurance due to solvency issues and regulations.

Lastly, the insurance company submits the account for processing by the host management system 300 by selecting the SUBMIT button 477. The host management system 300 then processes account and stores in data store 306.

Shipping Container Provider Account Setup

It may also be necessary for the host management system 300 to allow particular companies that provide shipping containers to set up a shipping container account. Sometimes, a particular container 10 is required to fulfill the customer's shipment order. As previously described above, the customer can enter a container type 438 in the preferences of his customer account, or the customer can specify the particular container type needed during the actual shipment order entry, discussed in more detail below. Such information may include a container that has temperature controls for shipment of temperature sensitive goods. Certain types of goods may be fragile and require a container 10 that is constructed such that its contents are not as susceptible to damage that may be caused due to movement and/or jostling of the container 10 during shipment.

Figure 8 illustrates an example of a shipping container account data entry screen provided by the host management system 300 to set up a shipping container account. The shipping container company provider provides the name of its company 500, the street address 502, city 504, state 506, and zip code 508. Any special correspondence or inquiries are sent to the attention of the contact 510 at the contact phone number 512 provided. An extension 513 may also be entered in if the contact phone number 512 is not a direct dial line. The shipping container company may also enter in an email address 514 for notifications concerning shipments and other relevant information concerning the host management system 300. The shipping container company also enters a

password 516 so that future access to information concerning goods shipped and the customer's account for any changes desired can be performed in a secure manner just as described above for the customer account setup above.

The shipping container company can choose to setup an IP address 518 for the host management system 300 to log into to communicate with the computer system of the shipping container company as the client system 300 directly in lieu of human order entry only. In this manner, information transferred between the host management system 300 and shipping container company occurs at a high-speed rate without need for human interaction. The host management system 300 as part of the account setup will attempt to connect to the IP address 518 to determine if a connection was successful. If not, the insurance company contact 510 will be notified of such.

The shipping container account includes as a preference the ability to indicate special types of containers available as part of the shipping containers inventory to be used for shipping products. Customers making shipping requests, discussed in more detail below, may choose to provide their own container 10 and therefore will not need access to options for shipping containers. However, if the customer does indicate that a shipping container is needed, the host management system 300 will access its shipping container company accounts to determine if containers are available that meet the needs of the customer. Such possibilities for containers are displayed to the customer for selection.

Customers often need external sources for shipping containers when special goods are shipped and shipping container companies may not always provide all types of special containers. A preference for special container types offered 520 is listed on the shipping container account setup screen so that the shipping container company may choose whether they offer certain types of shipping containers. If a shipping company does not offer a particular type of special container and the customer making a shipment order requests that particular type, that particular shipping company will not be given to the customer as an option for providing the container 10.

Additionally, the shipping container company can provide an indication of container 10 sizes offered 522 so that the shipping container company is presented to the customer as an option for container 10 selection if the shipping container company's container 10 sizes offered are able to meet the minimum requirements in space for the customer's shipment. The host management system 300 compares the customer's request for container size to the shipping container companies' offering by looking in the shipping container companies' size offered 522 preference in their accounts. If the minimum size required by the customer is also offered by the shipping container company, the host management system 300 will request a quote and availability from that shipping company during the customer order to determine what sizes the shipping company has in stock to offer to the customer and the price at which to offer it. Although the shipping container company has already entered in the sizes offered 522 preference, the host management system 300 verifies sizes available

and pricing in real time through communication to the client system 330 of the shipping container company to ensure availability and the most up to date pricing in case the shipping container company adjust prices after the time at which their account is set up in the host management system 300. The sizes offered preference 522 are listed in terms of volume in feet. For example, if the shipping container company offers as its smallest size a container 10 capable of shipping 50 cube feet, a customer request for a container that can hold goods of 1 to 50 cube feet will cause the host management system 300 to offer the 50 cube feet container to the customer for the particular shipping company. If the shipping container company's maximum size is 40 cube feet, the host management system 300 will not request a quote from the particular container shipping company and therefore such container shipping company will not be offered to the customer as an option for selection.

Lastly, the shipping provider submits the account for processing by the host management system 300 by selecting the SUBMIT button 519. The host management system 300 then processes account and stores in data store 306.

Shipping Provider Account Setup

It may also be necessary for the host management system 300 to allow particular companies that provide shipping services to set up a shipping provider account. The host management system 300 will use the shipping providers in order to fulfill the customer shipment.

Figure 9 illustrates an example of a shipping provider account data entry screen provided by the host management system 300 to set up a shipping provider account. The shipping provider company provides the name of its company 550, the street address 552, city 554, state 556, and zip code 558. Any special correspondence or inquiries are sent to the attention of the contact 560 at the contact phone number 562 provided. An extension 564 may also be entered in if the contact phone number 562 is not a direct dial line. The shipping provider may also enter in an email address 566 for notifications concerning shipments and other relevant information concerning the host management system 300. The shipping provider also enters a password 568 so that future access to information concerning goods shipped and the customer's account for any changes desired can be performed in a secure manner just as described above for the customer account setup above.

The shipping provider can choose to setup an IP address 570 for the host management system 300 to log into to communicate with the computer system of the shipping provider as the client system 300 directly in lieu of human order entry only. In this manner, information transferred between the host management system 300 and shipping provider occurs at a high-speed rate without need for human interaction. The host management system 300 as part of the account setup will attempt to connect to the IP address 570 to determine if a connection was successful. If not, the shipping provider contact 560 will be notified of such.

The shipping provider account includes as a preference the ability to indicate special types preferences concerning its services to be used by the host management system 300. Customers making shipping requests, discussed in more detail below, may specify the manner in which goods are to be shipped. However, if the customer does indicate that a shipping container is needed, the host management system 300 will access its shipping provider accounts to determine if shipping services are available that meet the needs of the customer. Such shipping possibilities are displayed to the customer for selection.

The shipping provider can include preferences regarding its shipping services so that the host management system 300 can compare the customer request to the shipping provider's preferences stored in the provider's account to determine if a particular shipping provider should be queried as a possibility to provide shipping services for a particular customer shipment request.

One shipping provider preference is the time to ship the goods 572. For example, the shipping provider may have services similar to that of United Parcel Service which are ground service, 3 day select, 2nd day air letter, 2nd day air, next day air letter, next day air, 2nd day air a.m., and next day air saver. Shipping providers may or may not provide shipping services depending on the time required to ship such goods. The shipping provider may also distinguish timing for shipment between shipment of goods within the United States and outside the United States. In the present example, the shipping provider selects all of the different timing available for shipment as part of their standard offering for both shipment within the United States and outside the United States. This

information is used by the host management system 300 to determine if a particular shipping provider should be further queried to fulfill shipment of a customer's shipment order. Of course, other information not known until the customer's order is entered into the host management system 300, such as origination, destination and exact timing required, may also disqualify a shipping provider from offering its services. The primary goal of the preferences is to define certain criteria at which service providers are eliminated automatically so that they are not queried by the host management system 300.

Another shipping provider preference is the type of materials that the shipping provider will not ship 574. Just like the discussion above on insurance companies not providing insurance for certain types of goods, shipping providers may also choose to not ship certain types of materials as standard practice. For instance, United Parcel Service insures packages up to $100 for no additional charge. Extra insurance above this amount may be purchased by the customer for a fee. Therefore, if the customer's insurance requirement is less than or equal to the insurance provided for free by the shipping provider, the host management system 300 will choose the shipping provider as the insuring company as well. However, the customer can always enter in specific insurance information and override this feature.

The shipping provider can choose from the selections included in the account setup screen which types of materials that it will not ship, such as perishables, hazardous materials, bio materials, and organs, so that the host management system 300 does not query the shipping provider if the customer

shipment order requests shipment of goods specifically excluded from shipping by a particular shipping provider.

Shipping providers may provide their own insurance for shipment of goods. Therefore, the shipping provider can indicate as a preference whether its insurance should be offered to the customer 576 if the customer has not specifically indicated a particular insurer as previously discussed above. It is assumed that the shipping provider provides insurance for the goods being requested for shipment by a customer if all other criteria including preferences are met.

The shipping provider may only offer shipment of goods under a certain weight or size limit. Therefore, the shipping provider may indicate such maximum weight limit 578 and/or maximum size limit 580 in the preferences section of the account setup screen. For instance, the United Parcel Service requires that packages do not have a combined girth and length of more than 130 inches. If the customer shipment order request does not meet the preferences indicated by a particular shipping provider, the host management system 300 will not further query the particular shipping provider as a possibility for providing shipment of the customer's goods.

Other preferences may be provided in the shipping provider account preferences that further define the criteria to which a shipping provider may or may not be offered to a customer for shipping services.

Lastly, the shipping provider submits the account for processing by the host management system 300 by selecting the SUBMIT button 577. The host management system 300 then processes account and stores in data store 306.

Financial Company Account Setup

Figure 10 illustrates an example of a financial account data entry screen provided by the host management system 300 to set up a finance company account such as a bank or other financial institution. The financial company provides the name of its company 600, the street address 602, city 604, state 606, and zip code 608. Any special correspondence or inquiries are sent to the attention of the contact 610 at the contact phone number 612 provided. An extension 614 may also be entered if the contact phone number 612 is not a direct dial line. The financial company may also enter in an email address 616 for notifications concerning shipments and other relevant information concerning the host management system 300. The financial company also enters a password 618 so that future access to information concerning goods shipped and the customer's account for any changes desired can be performed in a secure manner just as described above for the customer account setup above.

The financial company can choose to setup an IP address 620 for the host management system 300 to log into to communicate with the computer system of the shipping provider as the client system 300 directly in lieu of human order entry only. In this manner, information transferred between the host management system 300 and shipping provider occurs at a high-speed rate

without need for human interaction. The host management system 300, as part of the account setup, will attempt to connect to the IP address 620 to determine if a connection was successful. If not, the financial company 610 will be notified of such.

The financial company can include preferences regarding its financial services so that the host management system 300 can compare the customer request to the financial companies' preferences stored in the financial company account to determine if the customer qualifies for offerings by the financial company.

One financial company preference is the minimum credit rating 622 of the customer before financial will be given. The customer can request a credit line quote during the customer account setup discussed above. The host management system 300 determines the customer's credit rating and compares it to the minimum credit rating preference 622 set up in each of the financial company accounts with the host management system 300. If the customer's credit rating does not meet at least the minimal credit rating preference 622 for a particular financial company, then that financial company will not be queried by the host management system 300 for a quote. Also, please note that even if the customer's credit rating is equal to or higher than the minimal credit rating preference 622 for a particular financial company, the financial company may still choose to not extend the customer a credit line. However, this is determined after the host management system 300 sends all relevant information about the customer to the financial company client system 330.

Lastly, the financial company submits the account for processing by the host management system 300 by selecting the SUBMIT button 621. The host management system 300 then processes account and stores in data store 306.

Also please note that the host management system 300 can acts as the financial company as well, providing the customer a line of credit for shipping purposes through the host management system 300.

Customs Handling Provider Account Setup

Figure 11 illustrates an example of a customs handling provider data entry screen provided by the host management system 300 to set up a customs handling provider account such as a bank or other financial institution. The customs handling provider provides the name of its company 581, the street address 582, city 583, state 584, and zip code 585. Any special correspondence or inquiries are sent to the attention of the contact 586 at the contact phone number 587 provided. An extension 588 may also be entered if the contact phone number 587 is not a direct dial line. The customs handling provider may also enter in an email address 589 for notifications concerning shipments and other relevant information concerning the host management system 300. The financial company also enters a password 590 so that future access to information concerning goods shipped and the customer's account for any changes desired can be performed in a secure manner just as described above for the customer account setup above.

The customs handling provider can choose to setup an IP address 620 for the host management system 300 to log into to communicate with the computer system of the shipping provider as the client system 300 directly in lieu of human order entry only. In this manner, information transferred between the host management system 300 and shipping provider occurs at a high-speed rate without need for human interaction. The host management system 300, as part of the account setup, will attempt to connect to the IP address 591 to determine if a connection was successful. If not, the financial company 581 will be notified of such.

The customs handling provider can include preferences regarding its customs handling service so that the host management system 300 can compare the customer request to the customs handling provider preferences stored in the customs handling provider account to determine if the customs handling provider can provide customs handling services for the customer's shipment.

One customer handling provider preference is the country in which the customer shipment originates 592. Another customer handling provider preference is the country in which the customer shipment is destined for 593. A code for the country is entered into the customers handling provider account setup screen illustrated in Figure 12. Certain customs handling service providers may or may not be able to provide customs handling services depending the originating and/or destination country of the customer's shipment.

Lastly, the financial company submits the account for processing by the host management system 300 by selecting the SUBMIT button 594. The host management system 300 then processes account and stores in data store 306.

Regulatory Agency Account Setup

The host management system 300 provides the ability of having regulatory accounts for regulatory agencies to access information concerning customer shipments. Regulatory agencies may be given permission on a per customer basis, meaning that they can access information about a particular customer's shipments. The regulatory agency may be given permission to access any information concerning customer shipments in the host management system 300. Local regulatory agencies may be given access to shipment information for container shipments that touch and concern the local regulatory agencies' jurisdiction (i.e. the container shipment originates, travels through, and/or reaches its final destination in the geographic jurisdiction of the regulatory agency).

It should be noted that a third party service provider can set up accounts for more than one category of services discussed above if the third party service provider has the ability to provide such services.

Shipment Order Entry

A customer that has set up a customer account in the host management system 300, as described previously in Figure 6, can place shipment orders

through the host management system 300. The orders are placed through use of a client system 330. The orders can be manually entered by a human on the client system 330 side such as through an Internet web page, or in an automated fashion by use of a computer system on the client system 330 side. Some customers may wish to have their orders for products from their customers interface to a computer system that then in turn acts as a client system 330 sending orders automatically to the host management system 300.

Figure 12 illustrates the customer log-in screen. The customer enters an account number 624 and password 626 into the fields listed and selects the LOGIN button 628. If the customer does not have an account with the host management system 300, the host management system 300 will direct the customer to the customer account setup screen described earlier in Figure 6. If the customer does not enter the correct password 626, the host management system 300 will give the customer the ability to enter it in again, also providing the customer with a host management system 300 contact number in the event the customer has forgotten his password.

Once the customer has successfully logged into the host management system 300, Figure 13 illustrates that he is given five choices regarding his account. The customer can make a shipment order entry 630, track shipments 632, generate reports about shipments 634, access billing information 636, and modify settings in their customer account 638.

Customer Shipment Order Entry

Figure 13 illustrates the customer shipment order entry screen that is displayed to the customer when the customer selects the shipment order entry selection 630 from the system choices screen. The customer first enters the shipment information for the shipment order, including the origination address 654, origination city 656, origination state 658, origination zip code 660, and origination country 662. The customer next enters the destination information for the shipment order, including the destination name/company 664, destination address 666, destination city 668, destination state 670, destination zip code 672, and destination country 674.

The customer next enters the shipment information and special handling for the shipment order. The customer can choose a preferred shipping provider 675, in which case the host management system 300 will use this shipping provider to ship the goods if the shipping provider has established a shipping provider account in the host management system 300. The size of the shipment 676 is entered by the customer. The size could be a three dimensional measurement, volume or any other type of measurement as allowed by the host management system 300 to properly place the order. The weight of the shipment 678 is entered by the customer. This information may not be entered by the customer, but the customer must enter this information if the shipping providers have a maximum weight limit in their account preferences in the host management system 300. The destination date 680 is entered, which is the date that the customer is requesting that the shipment be delivered to the destination.

The customer can specify whether or not the shipping provider should pick up 682 the shipment order or if the customer will take responsibility to deliver the shipment to a location specified by the host management system 300. If the customer specifies pickup, the host management system 300 will tell the customer when the delivery will be picked up approximately and by whom. If the customer specifies no pickup, which means that the customer will drop-off the shipment, the host management system 300 will tell the customer where to drop-off the shipment and time in which to do so in order for the shipment to be completed successfully and by the destination date 680.

The customer can choose whether or not the shipment may be re-routed 684 by the host management system 300. This may give the customer better pricing for the shipment. However, this selection does not mean that the host management system 300 can re-route the shipment if such re-routing will delay such shipment without subsequent follow-up and confirmation by the customer, discussed in more detail in the monitoring feature below.

The customer may enter special environmental information concerning the shipment so that the host management system 300 can ensure that the proper shipping provisions are ascertained and quoted in the price to the customer for shipment. Options such as temperature sensitivity 686, humidity sensitivity 692, goods for shipment being perishable 688, and the goods being especially fragile and/or prone to damage 690 are available. This information will be used by the host management system 300 in determining information such as acceptable shipping providers, acceptable shipping containers, and acceptable routing

information for the customer shipment since all of these factors may affect the special handling requirements for the customer's shipment.

The customer can provide shipment options that will cause the host management system 300 to perform various tasks when the customer order is submitted. The customer can choose to have the host management system 300 search for options regarding the shipment such as the cheapest price 694, the best delivery time 696, best routing 698, best customs handling method 700, and alternative times for delivery 702.

If the customer selects the cheapest price 694 option, the host management system 300 will search for providing the shipment in the cheapest manner that is closest to the customer's shipment request and special handling options. The customer will be given these alternatives after the order is submitted and given the opportunity to accept any changes made to the shipment order entry based on pricing. If the customer selects the best time 696 for delivery, the host management system 300 will search for providing the shipment in the best time possible given the customer's shipment request and special handling options. Again, the customer will be given these alternatives after the order is submitted and given the opportunity to accept any changes made to the shipment order entry based on delivery timing. If the customer selects the best route 698 for delivery, the host management system 300 will search for providing the shipment in the least number of stops. Again, the customer will be given these alternatives after the order is submitted and given

the opportunity to accept any changes made to the shipment order shipment stops.

The customer can also enter preferences for insurance, financing for billing purposes, and customs handling if the customer has preferred choices for companies to supply these services. If the customer has a preferred insurance provider, the customer enters the insurance company name 704 and insurance account number 706 in the fields provided. The customer may optionally enter in the value 708 of the shipment to be insured. When the order is submitted, the host management system 300 will check to see if the particular insurance company name 704 has an insurance account set up with the host management system 300. If not, the host management system 300 will perform not confirmation activity. If so, the host management system 300 will check the insurance account preferences first to see if the customer's shipment order is in conflict with any of the insurance companies' 704 preferences. Second, the host management system 300 will query the insurance company directly through the insurance company 704 client system 330 to inform the insurance company 704 of the customer order and any conflicts with its insurance account to determine if the insurance company 704 denies insurance. If the insurance company 704 denies insurance, the customer is made aware of this before the shipment order is finalized and is then given the option of purchasing insurance from other insurance company providers.

If the customer has a preferred finance provider, the customer enters the financial company name 710 and financial company account number 712 in the

fields provided. When the order is submitted, the host management system 300 will check to see if the particular financial company 710 has a financial account setup with the host management system 300. If not, the host management system 300 will perform not confirmation activities. If so, the host management system 300 will check the financial account preferences first to see if the customer's shipment order is in conflict with any of the financial companies' preferences. Second, the host management system 300 will query the financial company 710 directly through the financial company 710 client system 330 to inform the financial company 710 of the customer order and any conflicts with its financial account to determine if the financial company 710 denies financing. If the financial company 710 denies financing, the customer is made aware of this before the shipment order is finalized and given the option of applying for financing from other financial company providers, or the ability to provide payment information such as a credit card or the customer's account with the host management system if one exists, since the host management system 300 may act as the financial company 710 for the customer.

If the customer has a preferred customs handling provider, the customer enters in the customs handling company name 714 and customs handling account number 716 in the fields provided. When the order is submitted, the host management system 300 will check to see if the particular customs handling company name 714 has a customs handling account setup with the host management system 300. If not, the host management system 300 will perform not confirmation activities. If so, the host management system 300 will check the

customs handling account preferences first to see if the customer's shipment order is in conflict with any of the custom handling account preferences. Second, the host management system 300 will query the customs handling company 714 directly through the customs handling 714 client system 330 to inform the customs handling company 714 of the customer order and any conflicts with its customs handling account to determine if the customs handling service provider 714 denies providing customs handling and services. If the customs handling provider 714 denies insurance, the customer is made aware of this before the shipment order is finalized and given the option of customs handling services from other customs handling providers.

The customer can also choose to indicate a desire for quotes for insurance 724, financing 725, and/or customs handling 726 by making a quotes request. If the customer selects any of the quotes requests, the host management system 300 will query accounts for such services to provide to the customer before the shipment order is finalized to get confirmation from the customer. The fee for such services will appear on the finalization screen presented to the customer for the shipment order, discussed in more detail below.

If the customer wishes to override any financial accounts for payment for the shipping request, or to provide payment in the event that the customer does not have a financial account, the customer can choose to use a credit card. The customer enters the credit card number 718, the credit card type 720, and the expiration date 722 of the credit card. If the customer enters both payment

override information and a financial company name 710 and financial company account number 712, the host management system 300 will confirm which payment the customer wishes to use after the shipment order is submitted for processing.

Lastly, the customer submits the shipment order for processing by the host management system 300 by selecting the SUBMIT button 727. The host management system 300 then processes the shipment order to provide all services described above to determine if the shipment can be performed and if so, if any changes that are needed to be confirmed by the customer before the order can be finalized, as discussed above.

Please note that while the customer shipment order entry process was described above in a particular order, the customer does not have to enter the shipment order information in any particular order and some or all of the entries choices may be available depending on the feature set of the host management system 300. Please also note that all information fields in the customer shipment order entry screen may or may not have to be filled in for the host management system 300 to place and successfully fulfill the shipment order.

Customer Shipment Order Finalization

After the customer shipment order entry has been processed by the host management system 300 and all discrepancies, features and other services requiring further input from the customer such as financing, insurance, customs handling, special handling for the shipment, and shipment options, the host

management system gives the customer a summary of the shipment order for final confirmation. Figure 15 illustrates the customer shipment order finalization screen that is presented by the host management system 300 to the customer.

The origination 750 and destination 752 are shown to the customer so that the customer can ensure that this information is correct, especially since this information may have been changed by the host management system 300 due to shipment fulfillment processing and any special customer requests entered on the customer shipment order entry screen.

If an insurance company is insuring the shipment, the insurance company name 754 and insurance company account number 756 are displayed to the customer. If a financial company is used to finance the shipment, the financial company name 763 and financial company name account number 764 are displayed to the customer. The shipping provider 758, selected by either the customer or the host management system 300 as described previously, and the shipping reference number 760 are display to the customer. The container provider 765, especially in the case of a special container needed for special handling of the shipment in accordance with the special handling parameters entered by the customer on the customer shipment order entry screen, and container provider reference number 766 are displayed to the customer. The container provider reference number 766 may be especially useful for tracking since this reference number 766 will be linked to the shipment order, discussed in more detail below. The customs handling provider 767, selected by either the customer or the host management system 300 in response to the customer's

request as described previously, and customs handling provider reference number 768 are displayed to the customer, if applicable. The customs handling provider reference number 768 may be especially useful for use as reference in the event there are any problems with customs handling during shipment, since this reference number 768 will be linked to the shipment order, discussed in more detail below.

The routing information 761, determined by the host management system 300 in response to the customer shipment order entry, is displayed to the customer so that the customer can see the routing information if needed. This information is also used for scheduling of the shipment so that the host management system 300 can determine if the shipment is being shipped on time during its journey, as discussed below in more detail. This information may be especially useful for tracking, described in more detail below. Any special pick-up and/or drop-off information 762, including locations, are displayed to the customer to ensure that such information is understood by the customer before the shipment order entry is finalized in case the customer wants to change the shipment order.

Lastly, the costs all services required for the shipment order, if applicable, are displayed in an itemized fashion to the customer. The shipping provider cost 770, container provider cost 772, insurance cost 774, financing cost 776, and the customs cost 778 are displayed to the customer with the total cost 780 being the sum of all of aforementioned itemized costs. The customer can confirm the shipment order by selecting the CONFIRM button 782, in which case the

shipment order is placed and the host management system 300 will begin processing the order when the shipment reaches its first entry point into the system, which is usually the origination point. The host management system 300 defines a shipment tracking number to associate with the shipment. The shipping tracking number is display to the customer. The shipping tracking number is also used to associate all third party service providers to the particular customer shipment so that container information can be linked to a particular shipment order.

The customer can modify the shipment order by selecting the MODIFY button 784, in which case the host management system 300 takes the customer back to the customer shipment order entry screen in Figure 14 to allow the customer to modify the shipment order. The customer can cancel the shipment order by selecting the CANCEL button 786, in which case the host management system 300 will remove all information about the customer order and the host management system 300 will take the customer back to the system choices screen in Figure 13.

Monitoring

Figure 16 illustrates the flowchart for the monitoring feature of the host management system 300. The host management system 300 monitoring process is the process whereby the host management system 300 continually monitors the shipment during its route by receiving the location of the container

10 containing the shipment in order to perform any adjustments and notifications to the shipment needed, as described herein below.

The process starts (step 800), and the host management system 300 receives the monitoring, location and status information from a container 10 (step 802). The container 10 employed for shipment is programmed to communicate its location, using the tracking device 100, and its status to the host management system 300. The host management system 300 stores the container information in data store 306 and searches the data store 306 to link the container ID to the customer shipment order (step 804).

The host management system 300 compares the container's 10 location and time to the shipment schedule in the shipment order to determine if the container 10 is on schedule (decision 806). If the container 10 is not on schedule, the host management system 300 determines if the container 10 is ahead of schedule (decision 808). If so, the host management system 300 determines if the container 10 can be delayed in such a way that it still will arrive at its destination on schedule so that another container 10 in the host management system 300 that is behind schedule can be moved up (decision 812). If so, the container 10 is rerouted (step 816) and the process continues (decision 818, discussed below). If the container 10 cannot be delayed and/or another container 10 cannot be moved up to get it back on schedule, the process continues forward (decision 818, discussed below). If the container is not ahead of schedule (decision 808), this means that the container 10 is behind schedule and the host management system 300 determines if the container 10 can be

rerouted to put it back on schedule (decision 810). If not, the process continues on (decision 818, discussed below). If so, the host management system 300 makes changes to the schedule of the container 10, and the process continues (decision 818, discussed below).

The host management system 300 next determines if the status of the container 10 shows no problems based the container information and a comparison of it to the customer shipment order entry and special handling information (decision 818). For instance, the temperature system on the container 10 may have failed, and the customer shipment order entry listed special temperature handling as required for the shipment. If the status of the container 10 is not in accordance with the customer shipment order and/or special handling requirements, the host management system 300 determines if the container 10 can be rerouted to alleviate the problem (decision 820). For instance, the container 10 may have a failure with its temperature system, but the container 10 may be rerouted more north or south depending on the date of the year and the whether or not cooler or warmer temperatures than the present temperature of the container 10 is needed to help and/or alleviate the temperature failure of the container 10. If rerouting will not alleviate the problem, the process continues (decision 824, discussed below). If rerouting will alleviate and/or help the problem, the host management system 300 makes changes to the container 10 route and works with and/or notifies all third parties linked to the shipment for the container 10, including insurance, financing, shipping provider,

shipping container provider, and customs handling provider, so that the shipment order is changed accordingly for future monitoring and handling.

The host management system 300 next determines if the location of the container 10 is its final destination (decision 824). If so, the host management system 300 compiles a summary of the shipment, including billing information, and prepares such to be sent to the customer and all linked third parties to the shipment (step 826) and continues (step 826). If not, the process continues and the host management system 300 sends out status notifications and any changes in scheduling or the shipment order to all linked third parties' client system 330 in accordance with the contact information in their accounts (step 828). The linked third parties' may provide responses or further instructions back to the host management system 300 in response to such status notification, in which case the host management system 300 will store such response and carry out any actions necessary (step 830) and the process ends (step 834). The process restarts when the next container information is received by the host management system 300 from a container 10 (step 800).

Tracking

The customer and linked third parties to the customer shipment order are allowed to track the shipment and the status of the shipment, including container 10 information. Each third party service provider that has an account in the host management system 300 has an account number and password to enter into the host management system 300, similar to that shown for customers in Figure 13.

If the customer wishes to enter into the tracking feature of the host management system 300, the customer selects the TRACKING button 632 on Figure 13.

Figure 17 illustrates the tracking feature of the present invention. The process start (step 850) and the customer or the third party service provider (for this section referred to as "user") logs into the host management system 300 by entering an account number and password through use of a client system 330 (step 852). The host management system 300 authenticates and verifies the password to decide if correct (decision 854). If the password is incorrect, the host management system 330 displays an error message to the user and allows the user to reenter the correct password (step 856). If the password is correct, the host management system determines from the user if a particular status is required. For instance, the user may want status information about a particular shipment in which case the user enters in the tracking number for the shipment. If more than one container 10 is used to fulfill a shipment, then the shipment tracking number obtains the status of all the container(s) 10 being used. The user may want the status of all shipments in progress that are linked to such user. The shipments linked to customers are the shipments placed by the customers in the host management system 300. The shipments linked to third party service providers are the shipments that the customer has linked to such providers by allowing such providers to play a role in the customer's shipment, as previously discussed.

The host management system 300 compiles the information and delivers it to the client system 330 (step 860). Additionally, the host management system

300 determines if any other services can be sold if the user is a customer (step 862). For instance, the customer may have decided not to purchase insurance when the shipment order entry was made, but the customer may desire to purchase insurance after shipment has been initiated. The host management system 300, after locating the shipment and its status, can then query insurance companies that have accounts with the host management system 300 to see if such insurance companies want to provide a quote for insurance based on the status of the shipment and the remaining journey until destination is reached. Insurance companies may offer a lower rate for shipments already in progress than before shipment begins since the host management system 300 can accurately and reliably give the insurance company that status and location of the shipment. This feature is also beneficial to the customer in that the customer may be able to purchase insurance after shipment is made whereas shipping services usually do not allow a customer to purchase insurance once shipment has began. After the host management system 300 compiles any additional services that can be sold (step 862), the host management system 300 determines if the customer, through use of their client system 330, has indicated to purchase such services (decision 864).

If the customer does not with to purchase additional services, the process ends (step 868). If the customer does desire to purchase additional services whether it be by their own initiative or in response to suggestive selling by the host management system 300, the host management system 300 processes such additional services and updates the shipment record file in memory as well

as confirming such additional purchase of services to the service providers (step 866). The service provider is linked to the shipment order for tracking and notification purposes as previously described and the tracking process ends (step 868).

Reports

The customer can obtain reports about its shipments by entering into the shipping feature of the system choices screen discussed earlier in Figure 13. The customer, after successfully logging into the system, selects the REPORTS button 634. The host management system 300 then allows the customer to select from any number of reports. Such reports include information about shipments stored in data store 306. The format of the reports may include all shipments placed through the host management system 300, only completed shipments, or in progress shipments. The reports may be sorted in alphabetical or chronological order by any of the fields in the customer shipment order entry screen discussed earlier in Figure 14. The reports can be displayed electronically by the customer on the client system 330 and/or printed.

Additionally, the third party service provider with an account can obtain reports about its involvement with the shipment order in the same manner as for the customer discussed above. The host management system 300 searches through shipment records in data store 306 to ascertain which shipments involve

and/or involved the third party service provider so that that the third party service provider will have access only to records with its involvement.

Billing

Figure 18 illustrates the task in Figure 16 (step 826) for billing and invoicing of the customer when the customer shipment reaches its final destination. The process starts (step 900) and the host management system 300 looks up the history of the customer shipment order in data store 306 using the container 10 identification for the shipment. Next, the host management system 300 looks up the billing information for the customer to determine their billing plan, including method of billing. As previously described, the customer may have used a financial company to pay for the shipment, in which case the host management system 300 will send an invoice to that particular financial company. The invoice amount may differ from the original cost estimate given to the customer as part of the customer shipment order verification discussed previously in Figure 12. Changes may have been made to the order by the host management system 300 and/or the customer that may have altered the total cost for shipment whether it be less or more than the original determined cost.

If the customer has made arrangements through use of credit or through a third party service provider, such as a financial company, for payment for shipping services (decision 906), the host management system 300 sends a bill to such third party service provider (step 907) and the process ends (step 912). The host management system 300 may provide the capability of then paying

each of the third party service providers when the host management system 300 receives payment successfully from the customer or its financial agents. The host management system 300 sends payment to each of the third party service providers by wiring the funds to their accounts. Alternatively, the host management system 300 could issue a written payment. The payment, regardless of method, will reference the customer shipment tracking number so that the third party service provider will be able to link such payment to the specific services provided for organization and reconciliation purposes.

If the customer did not provide payment itself or through a third party service provider (decision 906), the host management system 300 determines if the customer is billed per shipment or on a periodic basis through invoicing (decision 908). If the customer billing is per shipment, the host management system 300 prepares a bill for the customer and communicates such bill to the customer for payment (step 910) and the process ends (step 912). If the customer is billed on a periodic basis, the host management system 300 adds the shipment to the customer's running invoice so that such invoice can be sent to the customer at the end of the billing cycle (step 911). The process then ends (step 912).

Also, the third party service providers, by use of their client system 330, can query the host management system 300 if payments for services are not provided. The third party service provider may have its own way to determine if services were provided for a customer shipment placed through the host management system 300. The third party service provider queries the host

management system 300 by providing the customer shipment tracking number. The host management system 300 checks its records to determine if the requesting third party service provider actually provided services to the particular customer shipment order based on the customer shipment tracking number. If so, the host management system 300 will send the third party service provider, through their client system 330, the details of the shipment, including date of such shipment reaching final destination and whether or not the customer provided payment to the host management system 300.

The customer can also access its billing records by entering into billing on the system choices screen discussed earlier in Figure 13. The customer, after successfully logging into the system, selects the BILLING button 636. The host management system 300 then finds the billing status of all shipments for the particular customer and displays them to the customer. The customer has the option of looking at all shipments, completed shipments only, or in progress shipments. The reports may also be organized in this manner. The customer can also determine if any bills are outstanding, for how long and the due date for each.

Modify Account

The customer is also able to modify his account by choosing the MODIFY ACCOUNT button 638 in the system choices screen illustrated in Figure 13. When the customer selects this option, the host management system 300 retrieves the customer's account from data store 306. The customer account is

displayed like that of the customer account setup screen illustrated in Figure 6, except that the field on the screen will be filled in already with the current information for the customer account stored in data store 306. The customer can then select any field and modify any field in his account. After the customer has finished modifying his account, the customer selects the SUBMIT button 446 just like that described above for Figure 6, and the modified customer account information is stored in data store 306 for future reference.

The host management system 300, due to its real-time two-way communication to and from the container 10, can allow the customer to log into host management system 300 to adjust the temperature of the container 10 and anytime during its transit. Additionally, the container 10 may communicate the security of the container 10 to the host management system 300 in real-time so that any breaches of the container 10 are communicated to the host management system 330 which can then be ascertained by the customer and/or third party service providers.

What is claimed is:

1. A management system for tracking containers used for shipments, comprising a host management system wherein said host management system is adapted to:

(i) Store

(ii) receive tracking information from the container; and

(iii) automatically notify users of said tracking information.

2. A device adapted to communicate information concerning a container to a remote site, comprising:

a control system that is adapted to receive container information about the container; and

a transmitter connected to said control system that transmits said container information and an identification of the container to the remote site.

3. The device of claim 2, further comprising a receiver adapted to receive positioning information from a global positioning system to determine the location of the container and communicate said positioning information to said remote site.

4. The device of claim 2, wherein said container information is comprised from the group consisting of temperature, pressure, and humidity.

5. A device adapted to communicate information concerning a container breach to a remote site, comprising:

a control system that is adapted to detect a breach in the container;

a receiver adapted to receive positioning information from a global positioning system to determine the location of said container; and

a transmitter connected to said control system that transmits said detected breach, an identification of the container and said positioning information of the container to the remote site.

6. A communication system that adapted to communicate container information to a remote site, comprising:

a container;

a control system attached to said container that is adapted to receive container information about said container; and

a transmitter connected to said control system that transmits said container information and an identification of said container to the remote site.

7. The communication system of claim 6, wherein said container is temperature controlled.

8. The communication system of claim 6, wherein said container information is comprised from the group consisting of temperature, pressure, and humidity.

9. A communication system that adapted to communicate information concerning a container breach to a remote site, comprising:

a container;

a control system attached to said container that is adapted to detect a breach in said container;

a receiver adapted to receive positioning information from a global positioning system to determine the location of said container; and

a transmitter connected to said control system that transmits said detected breach, an identification of said container, and said positioning information to the remote site.

10. A host management system that is adapted to receive information from a container, comprising:

a server;

a receiver connected to said server, said receiver adapted to receive an identification of the container and container information from the container; and

a transmitter connected to said server and adapted to transmit instruction information to the container.

11. The host management system of claim 10, wherein container information is comprised from the group consisting of temperature, pressure, and humidity.

12. The host management system of claim 10, further comprising a data store

connected to said server that stores a program executed by said server.

13. The host management system of claim 12, wherein said program is an account setup program.

14. The host management system of claim 13, wherein said account setup program is adapted to setup a customer account.

15. The host management system of claim 14, wherein said account setup program is adapted to receive and store customer preferences for shipment of containers in said data store.

16. The host management system of claim 15, wherein said customer preference is comprised from the group consisting of IP address for reporting, insurance company, insurance account number, finance company, finance company account number, shipping company, shipping method, container type, customs handling, allowing rerouting, allowing suggestive selling, requesting an insurance company quote, an insurance company quote amount, requesting a finance company quote, a finance company quote, and a shipping quote.

17. The host management system of claim 13, wherein said account setup program is a third party provider account setup program adapted to allow third party provider services to be offered to customers for container shipments.

18. The host management system of claim 17, wherein said third party provider account program is comprised of an insurance company account setup program for providing insurance on containers shipped by customers.

19. The host management system of claim 18, wherein said insurance company account setup program is adapted to store an insurance company preferences in data store.

20. The host management system of claim 19, wherein said insurance company preferences is comprised from the group consisting of type of goods not insured, minimal credit rating of customer, insuring of goods shipped outside a particular country, offer of suggestion rate to customer, and automatic notification of container delivery.

21. The host management system of claim 17, wherein said third party provider account program is comprised of a shipping container company account setup program for choosing a shipping container used by a customer for a shipment order.

22. The host management system of claim 21, wherein said shipping container company account setup program is adapted to store a shipping container company preferences in data store.

23. The host management system of claim 22, wherein said shipping container company preferences is comprised from the group consisting of special container types offered and sizes of containers offered.

24. The host management system of claim 17, wherein said third party provider account program is comprised of a shipping company account setup program to provide shipment of containers for customers.

25. The host management system of claim 24, wherein said shipping company account setup program is adapted to store a shipping company preferences in data store.

26. The host management system of claim 25, wherein said shipping company preferences is comprised from the group consisting of time for shipment, type of materials that will not be shipped, offering of insurance to customer, maximum weight that may be shipped, and maximum size of container that may be shipped.

27. The host management system of claim 17, wherein said third party provider account program is comprised of a finance company account setup program to provide financing for containers shipped by customers.

28. The host management system of claim 27, wherein said shipping container company account setup program is adapted to store finance company preferences in data store.

29. The host management system of claim 28, wherein said finance company preferences is comprised of minimum customer credit rating for financing.

30. The host management system of claim 17, wherein said third party provider account program is comprised of a customs account setup to provide customs handling for containers shipped by customers.

31. The host management system of claim 30, wherein said customs account setup program is adapted to store customs preferences in data store.

32. The host management system of claim 31, wherein said customs preferences is comprised from the group consisting of origination countries handled and destination countries handled.

33. The host management system of claim 12, wherein said program is comprised of customer shipment order entry program.

34. The host management system of claim 33, wherein said customer shipment order entry program is adapted to request quotes for services from third

party service providers.

35. The host management system of claim 33, wherein said customer shipment order entry program is adapted to suggest additional services to a customer for shipment of goods.

36. The host management system of claim 33, wherein said customer shipment order entry program is adapted to provide a discount based on data entered by customer in said entry program.

37. The host management system of claim 12, wherein said program is comprised from the group consisting of a monitoring program, a report program, a billing program, and a modify account program.

38. The host management system of claim 12, wherein said program is adapted to communicate a rerouting schedule to the container if the container is off schedule.

39. The host management system of claim 10, further comprising:

a client system connected to said server for accessing container information;

said server adapted to communicate container information to said client system.

40. The host management system of claim 39, wherein said client system is adapted to communicate information requests to said server concerning containers.

41. The host management system of claim 40, wherein said server and said client system communicate with each other using a markup language.

42. The host management system of claim 40, wherein said server and said client system communicate with each other through the Internet.

43. The host management system of claim 40, wherein said markup language is comprised of data-type aware markup language.

44. The host management system of claim 40, further comprising a markup language processor connected to said server for preparing markup language data to communicate to client system regarding containers.

45. The host management system of claim 39, wherein said server communicates said communication information to said client system in real-time as said container information is received by said server.

46. A computer software medium that executes on a server to store programs

for shipment and tracking of containers, comprising:

an account setup program to setup customer accounts for storing customer information and customer preferences;

a shipment order entry program for entering customer shipment orders for containers; and

a monitoring program for accessing container information communicated by containers to the server.

47. The computer software medium of claim 46, wherein said container information is communicated to the server in real-time.

48. The computer software medium of claim 47, further comprising a modifying program to communicate instructions to the container to change its temperature.

49. A method of adjusting the temperature of a container during its shipment, comprising the steps of:

receiving the actual temperature and identification of the container;

determining the desired temperature for the container from a memory based on said identification of the container; and

communicating said desired temperature setting to the container.

50. The method of claim 49, wherein communicating further comprises

communicating said desired temperature setting to the container if the actual temperature differs from the desired temperature.

51. The method of claim 49, further comprising the step of communicating the temperature and identification from said server to a client system.

52. The method of claim 49, further comprising the steps of:

receiving said desired temperature setting of the container from said client system; and

storing said desired temperature setting in memory connected to said server.

53. A method of allowing a customer to setup an account on a host management system for shipping and tracking of containers, comprising the steps of:

logging into a server using a client system;

executing an account setup program on said server;

entering customer information for shipment of containers into said account setup program; and

storing said customer information and preferences into memory connected to said server for later retrieval during a container shipment order.

54. The method of claim 53, wherein said entering further comprises entering

customer preferences for shipment of containers into said account setup program.

55. A method of suggesting additional services to a customer using a host management system for shipping of a container, comprising the steps of:

receiving information entered by the customer into a shipment order program regarding a container shipment order; and

suggesting additional shipment services to the customer based on the information entered into said shipment order program.

56. A method rerouting a container for shipment, comprising the steps of:

receiving a temperature of the container;

comparing said temperature to an acceptable temperature range for the container stored in memory; and

rerouting the container if said temperature if outside of said acceptable temperature range.

57. The method of claim 56, wherein said rerouting comprises rerouting the container on a more northern route if said temperature is above said acceptable temperature range.

58. The method of claim 56, wherein said rerouting comprises rerouting the container on a more southern route if said temperature is below said acceptable

temperature range.

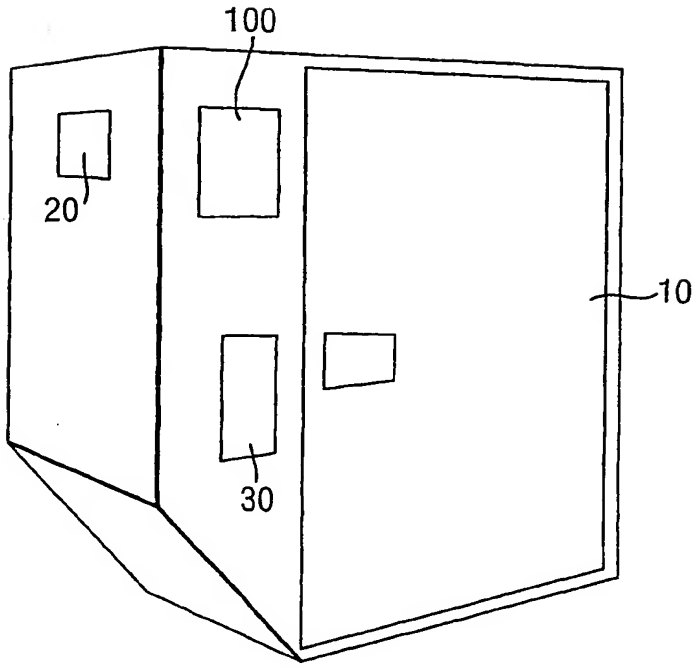
59. A method of automatically communicating information concerning a shipped container to third party service provider, comprising the steps of:

receiving container information and identification information from the container during its shipment;

looking up a communication address of a third party service provider stored in memory that is associated with the container; and

communicating said container information to said third party service provider automatically upon receipt of said container information.

Fig.1.



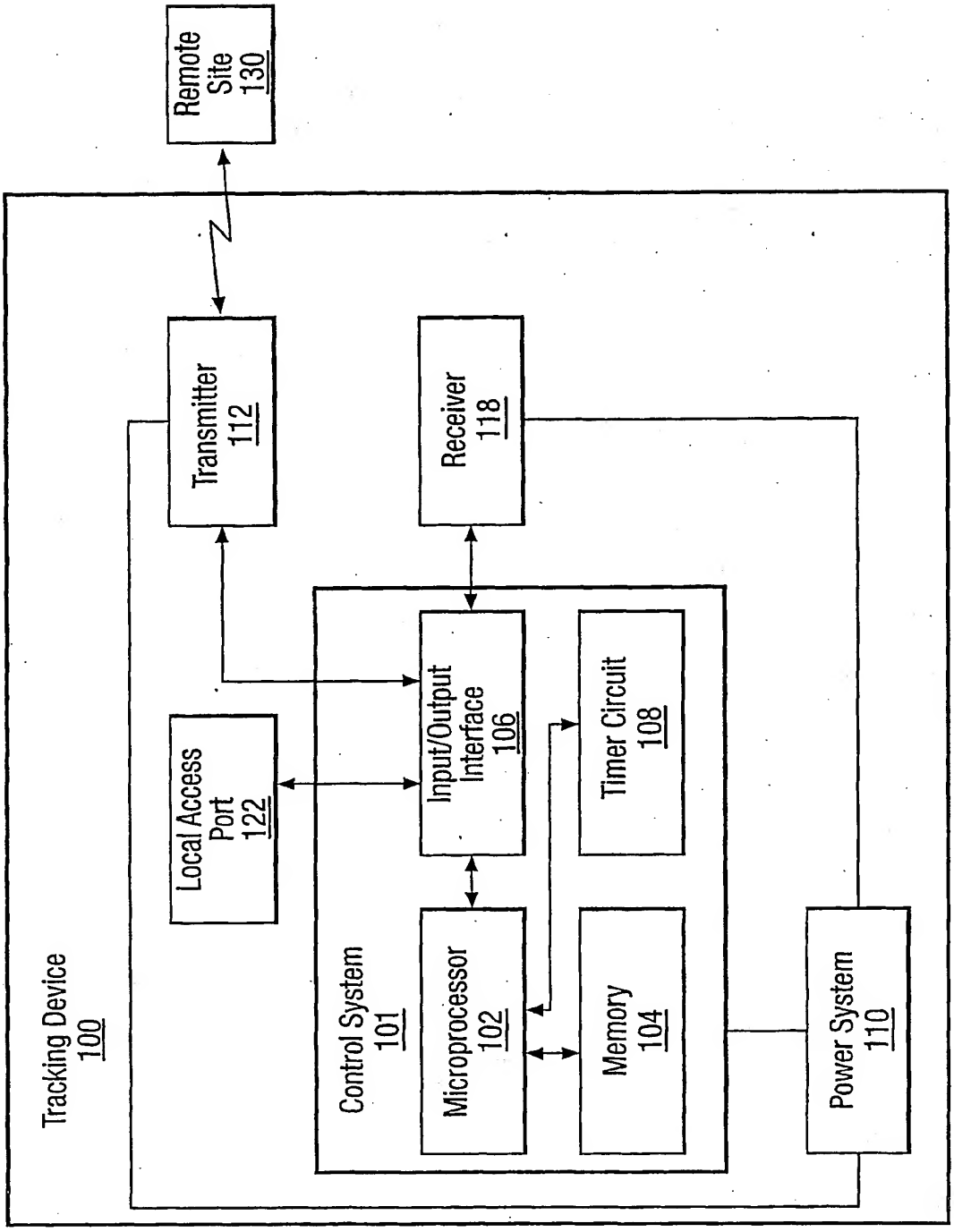

Remote Site 130
Transmitter 112
Receiver 118
Tracking Device 100
Local Access Port 122
Input/Output Interface 106
Timer Circuit 108
Control System 101
Microprocessor 102
Memory 104
Power System 110

Fig.2.

Fig.3.

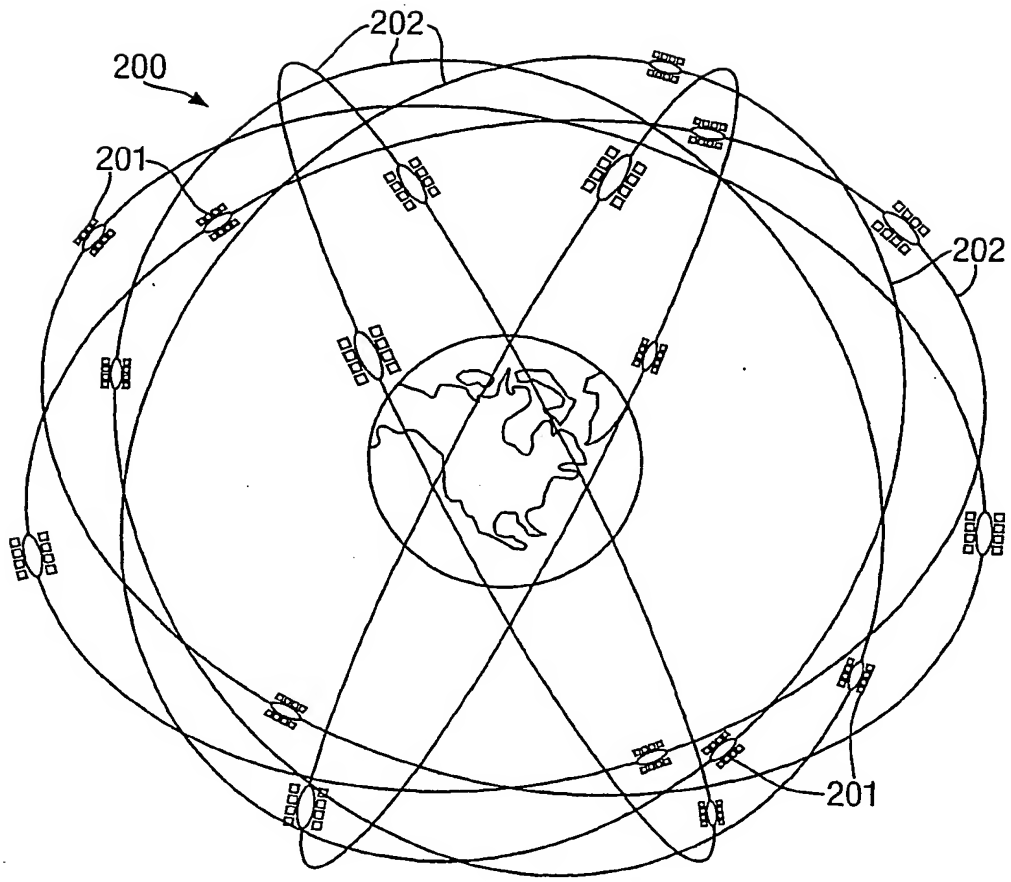
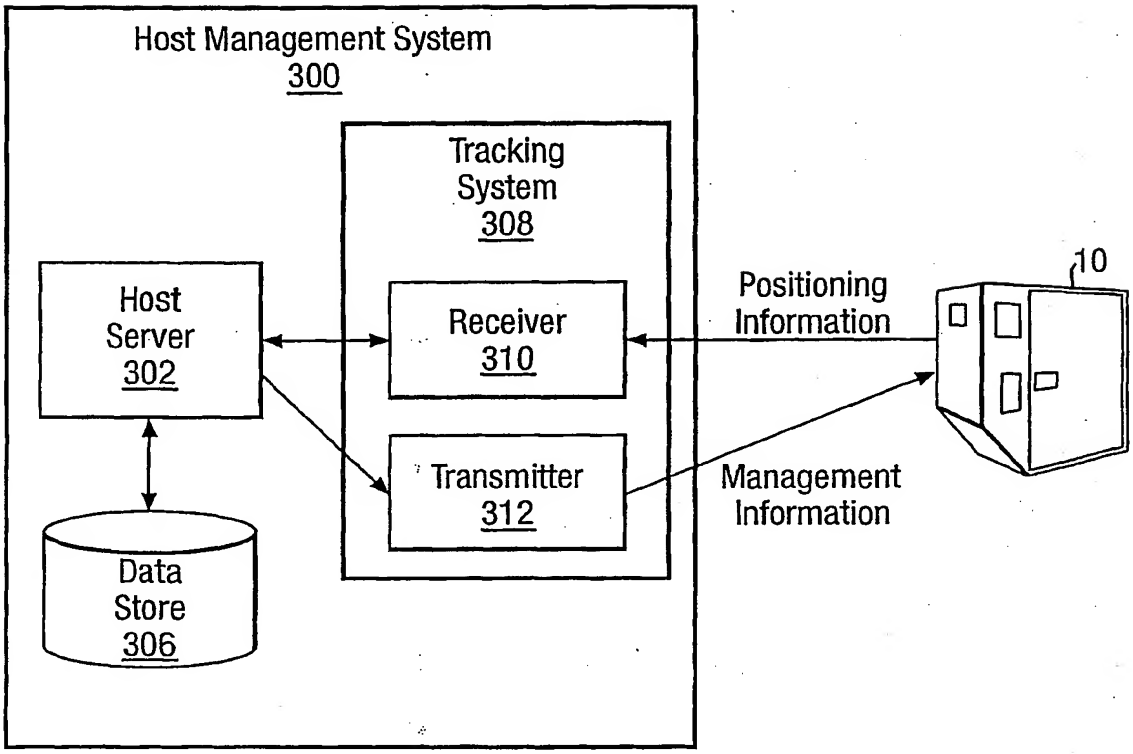


Fig.4.


Host Management System
300
Tracking
System
308
Host
Server
302
Receiver
310
Transmitter
312
Data
Store
306
Positioning
Information
Management
Information
10

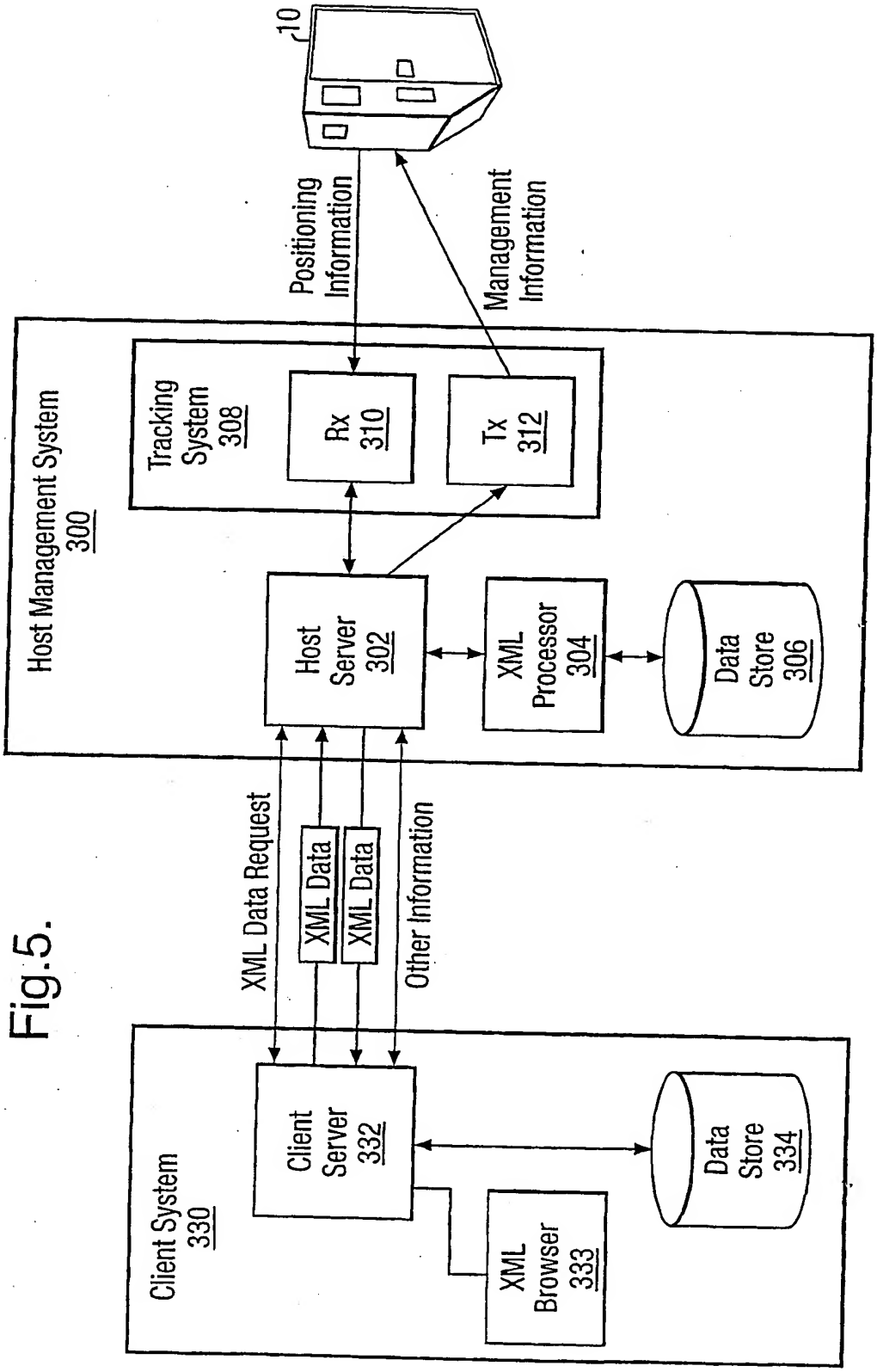

10
Positioning Information
Management Information
Host Management System 300
Tracking System 308
Rx 310
Tx 312
Host Server 302
XML Processor 304
Data Store 306
XML Data Request
XML Data
XML Data
Other Information
Client System 330
Client Server 332
XML Browser 333
Data Store 334

Fig.5.

Fig.6.

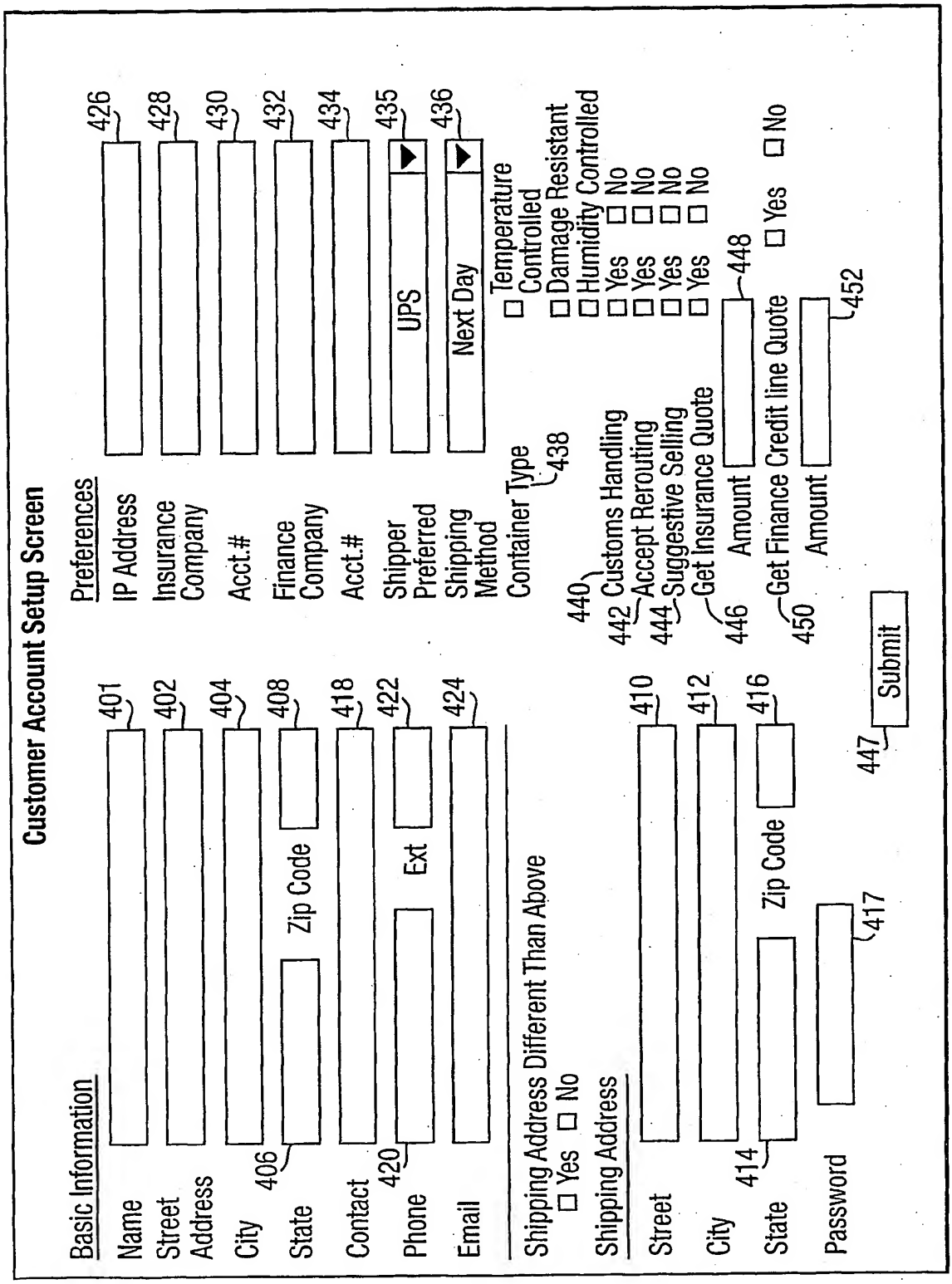

Customer Account Setup Screen
Basic Information
Name
Street Address
City
State
Zip Code
Contact
Phone
Ext
Email
Shipping Address Different Than Above
Yes
No
Shipping Address
Street
City
State
Zip Code
Password
Submit
Preferences
IP Address
Insurance Company
Acct.#
Finance Company
Acct.#
Shipper Preferred
UPS
Shipping Method
Next Day
Container Type
Temperature Controlled
Damage Resistant
Humidity Controlled
Customs Handling
Accept Rerouting
Suggestive Selling
Get Insurance Quote
Amount
Get Finance Credit line Quote
Yes
No
Amount
401
402
404
406
408
418
420
422
424
410
412
414
416
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Fig.7.

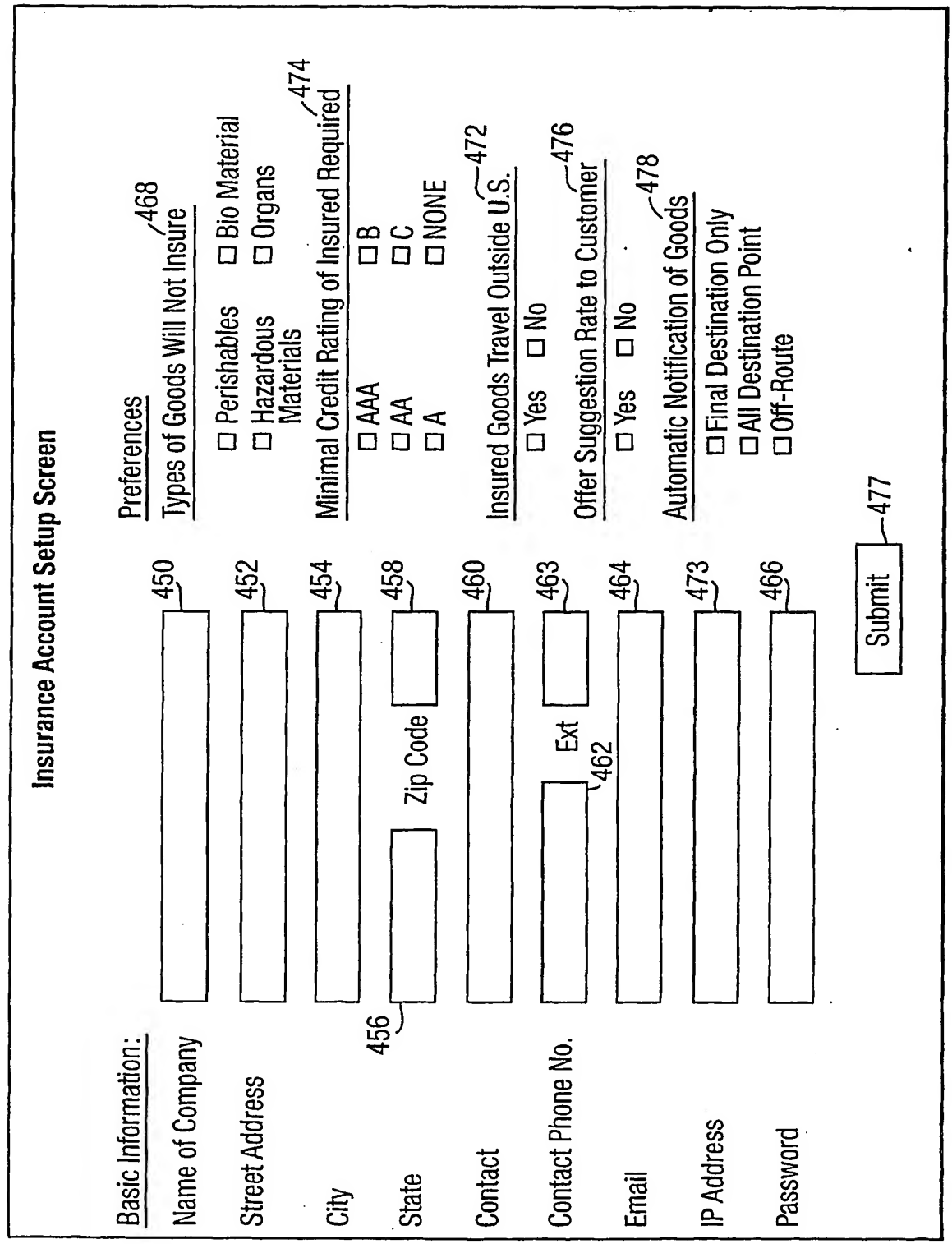

Insurance Account Setup Screen
Basic Information:
Name of Company
Street Address
City
State
Zip Code
Contact
Contact Phone No.
Ext
Email
IP Address
Password
450
452
454
456
458
460
462
463
464
473
466
Preferences
Types of Goods Will Not Insure
468
Perishables
Bio Material
Hazardous Materials
Organs
Minimal Credit Rating of Insured Required
474
AAA
AA
A
B
C
NONE
Insured Goods Travel Outside U.S.
472
Yes
No
Offer Suggestion Rate to Customer
476
Yes
No
Automatic Notification of Goods
478
Final Destination Only
All Destination Point
Off-Route
Submit
477

Fig.8.

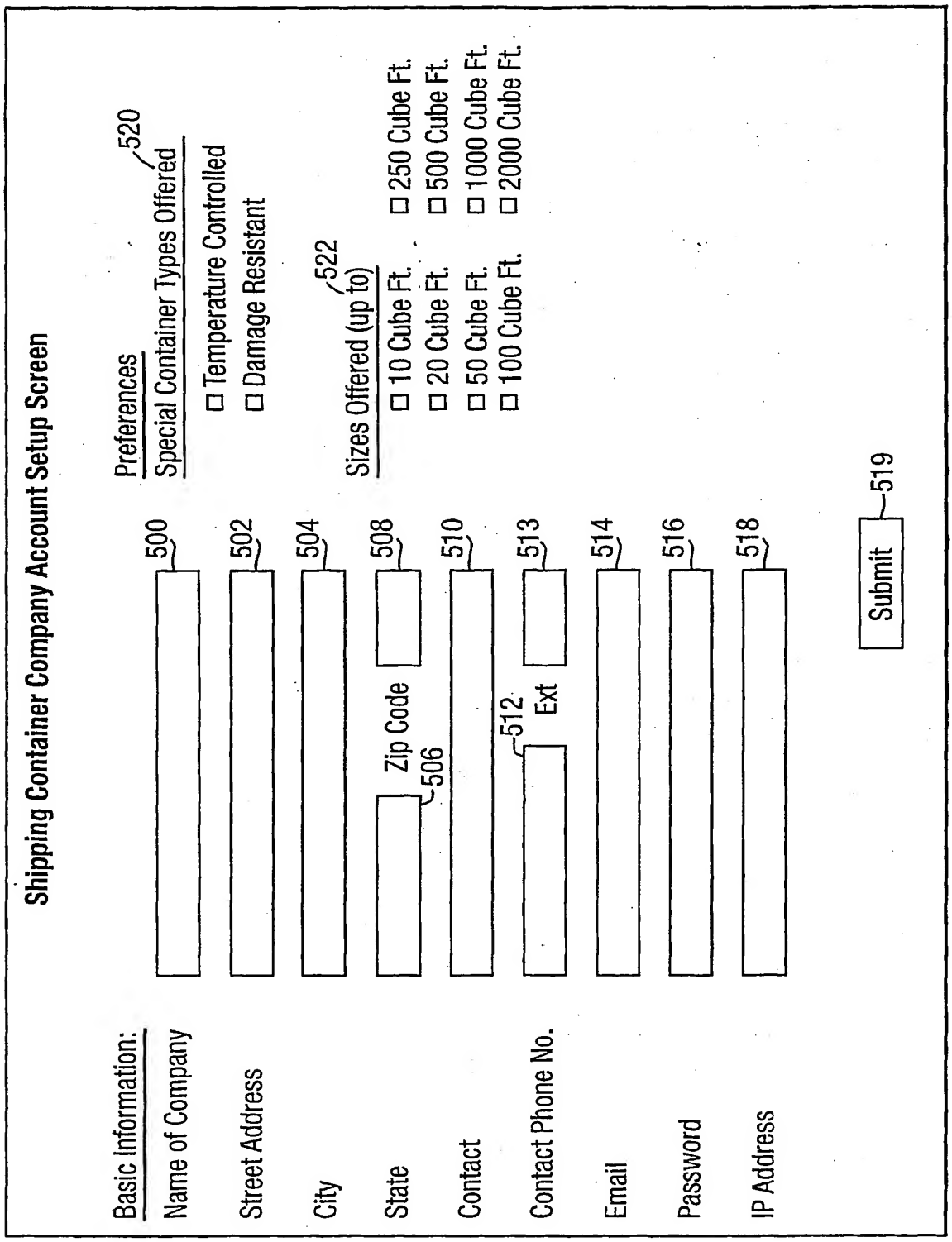

Shipping Container Company Account Setup Screen
Basic Information:
Name of Company
Street Address
City
State
Zip Code
Contact
Contact Phone No.
Ext
Email
Password
IP Address
Submit
Preferences
Special Container Types Offered
Temperature Controlled
Damage Resistant
Sizes Offered (up to)
10 Cube Ft.
20 Cube Ft.
50 Cube Ft.
100 Cube Ft.
250 Cube Ft.
500 Cube Ft.
1000 Cube Ft.
2000 Cube Ft.
500
502
504
506
508
510
512
513
514
516
518
519
520
522

Fig.9.

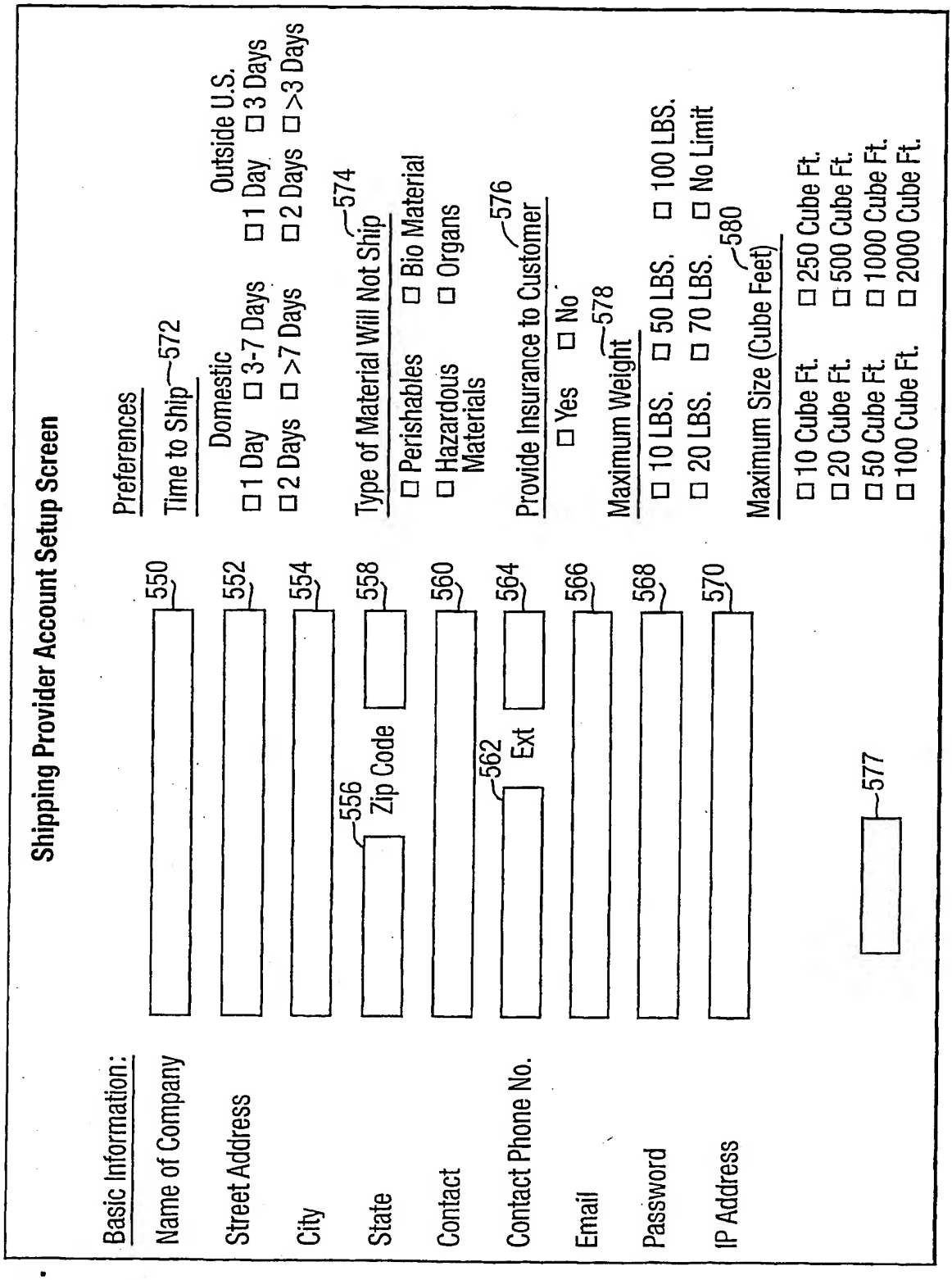

Shipping Provider Account Setup Screen
Basic Information:
Name of Company
Street Address
City
State
Zip Code
Contact
Contact Phone No.
Ext
Email
Password
IP Address
550
552
554
556
558
560
562
564
566
568
570
577
Preferences
Time to Ship
572
Domestic
1 Day
3-7 Days
2 Days
>7 Days
Outside U.S.
1 Day
3 Days
2 Days
>3 Days
Type of Material Will Not Ship
574
Perishables
Bio Material
Hazardous Materials
Organs
Provide Insurance to Customer
576
Yes
No
Maximum Weight
578
10 LBS.
50 LBS.
100 LBS.
20 LBS.
70 LBS.
No Limit
Maximum Size (Cube Feet)
580
10 Cube Ft.
250 Cube Ft.
20 Cube Ft.
500 Cube Ft.
50 Cube Ft.
1000 Cube Ft.
100 Cube Ft.
2000 Cube Ft.

Fig.10.

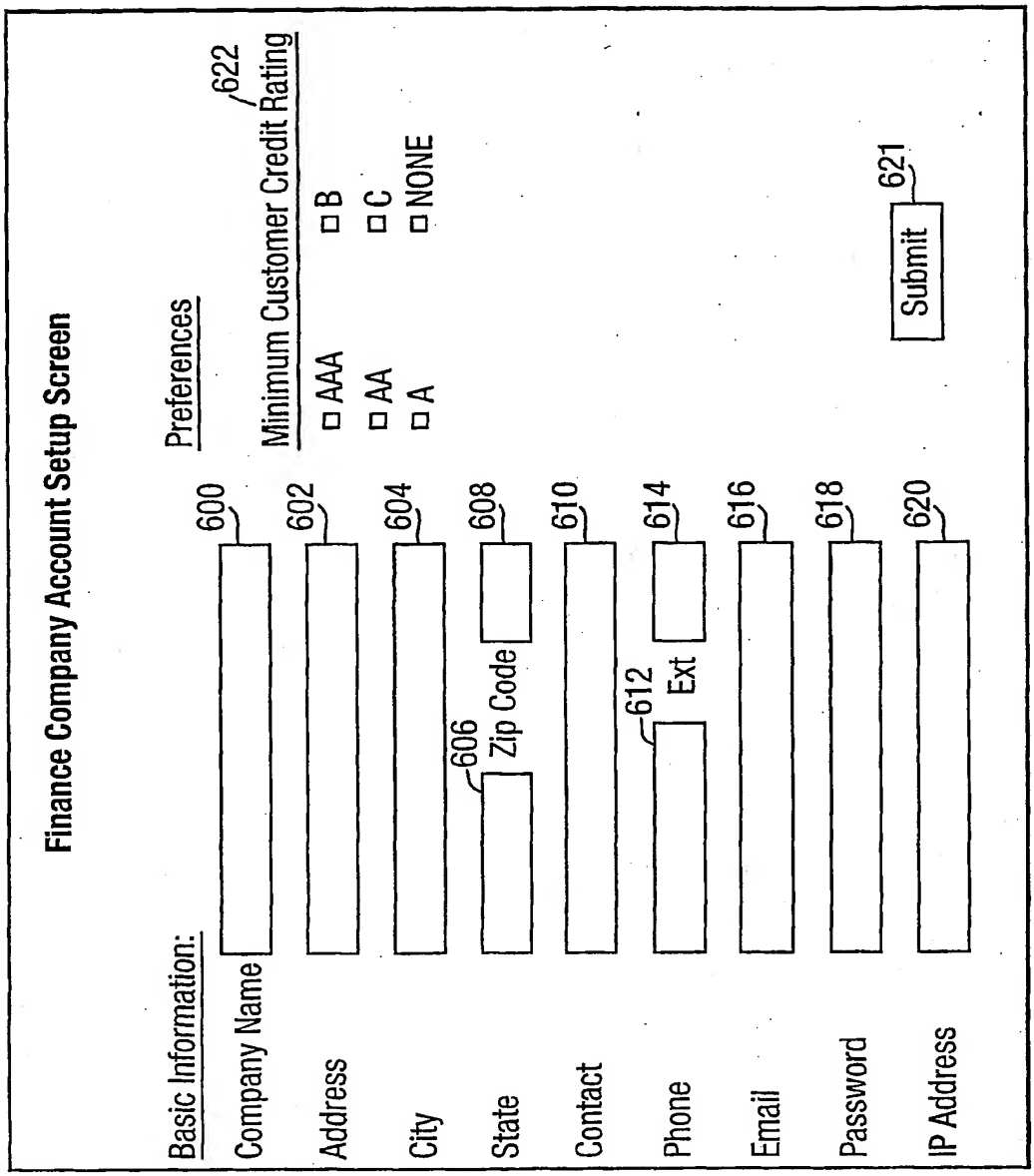

Finance Company Account Setup Screen
Basic Information:
Company Name
Address
City
State
Zip Code
Contact
Phone
Ext
Email
Password
IP Address
Preferences
Minimum Customer Credit Rating
AAA
AA
A
B
C
NONE
Submit
600
602
604
606
608
610
612
614
616
618
620
621
622

Fig.11.

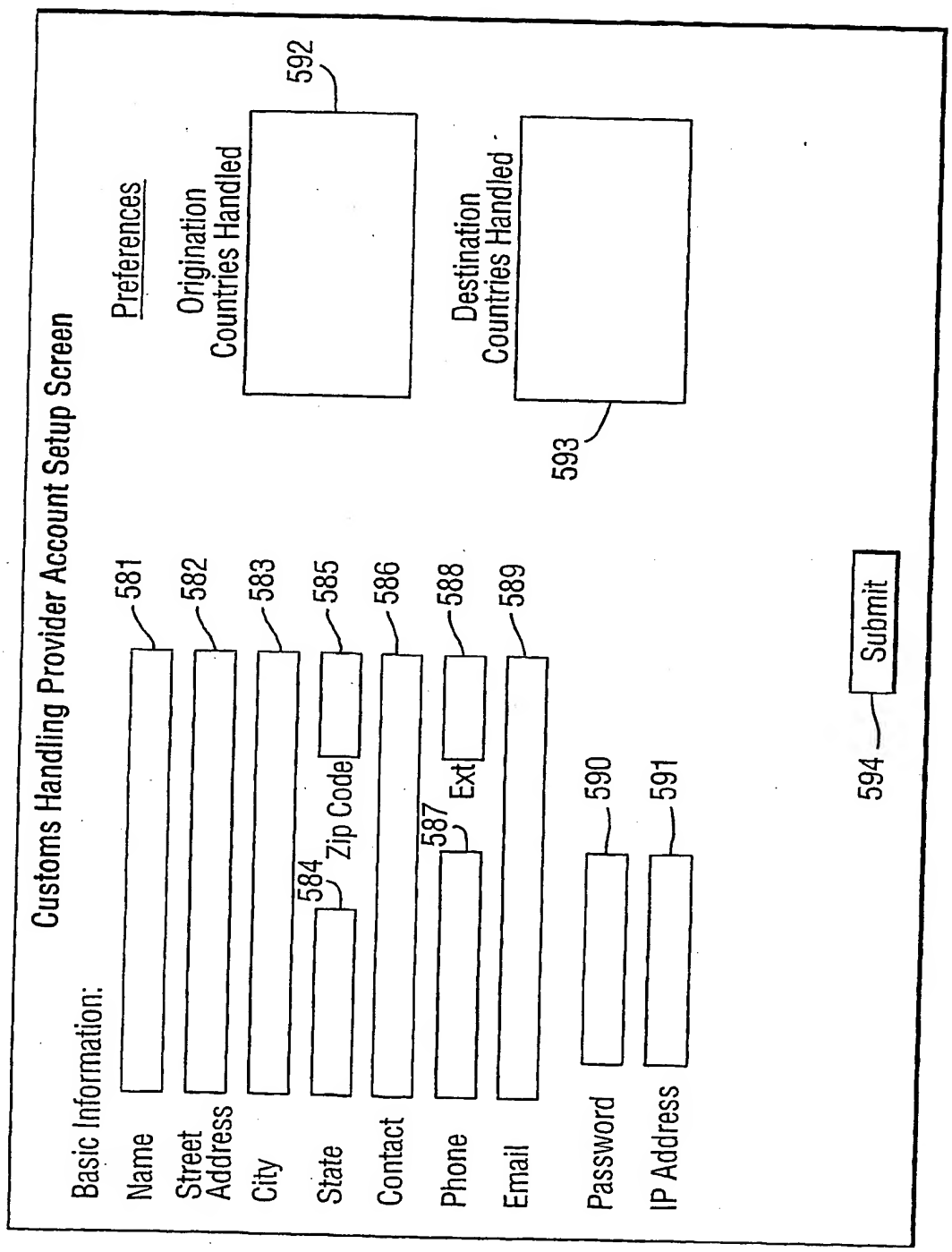

Customs Handling Provider Account Setup Screen
Basic Information:
Name
Street Address
City
State
Zip Code
Contact
Phone
Ext
Email
Password
IP Address
Preferences
Origination Countries Handled
Destination Countries Handled
Submit
581
582
583
584
585
586
587
588
589
590
591
592
593
594

Fig.12.

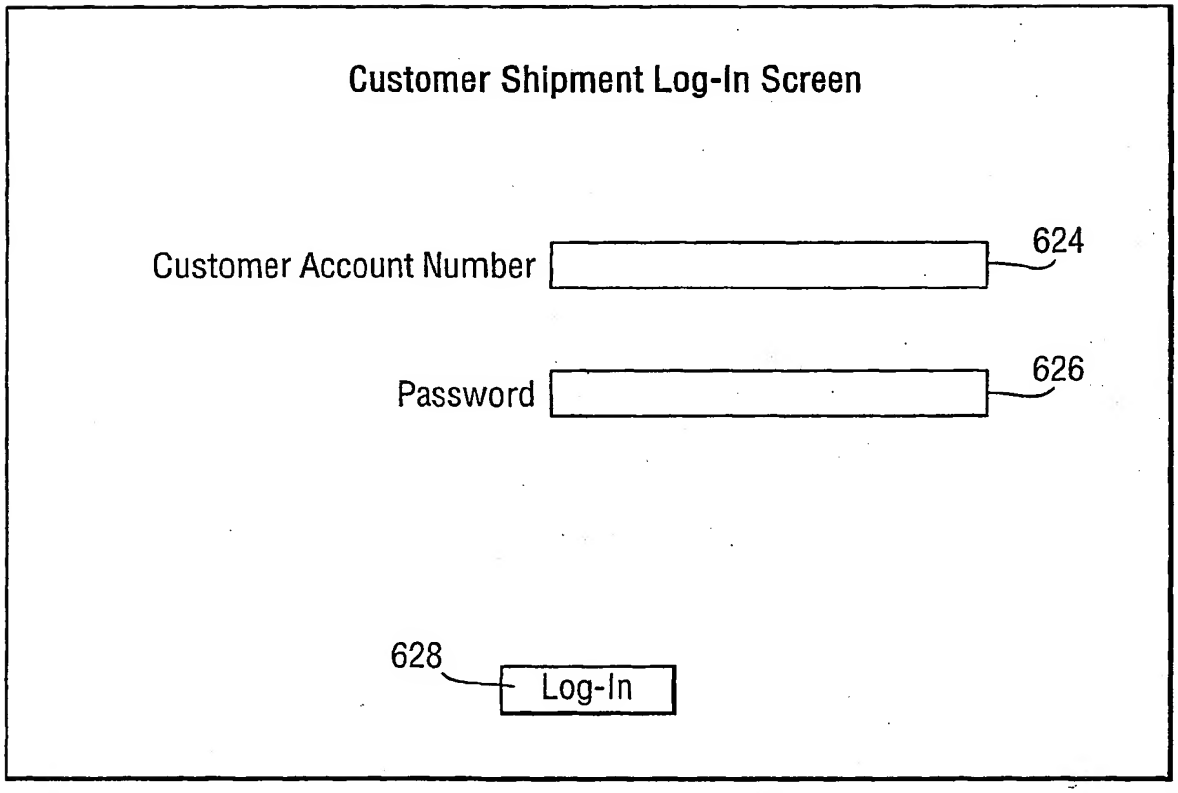

Customer Shipment Log-In Screen
Customer Account Number
624
Password
626
628
Log-In

Fig.13.

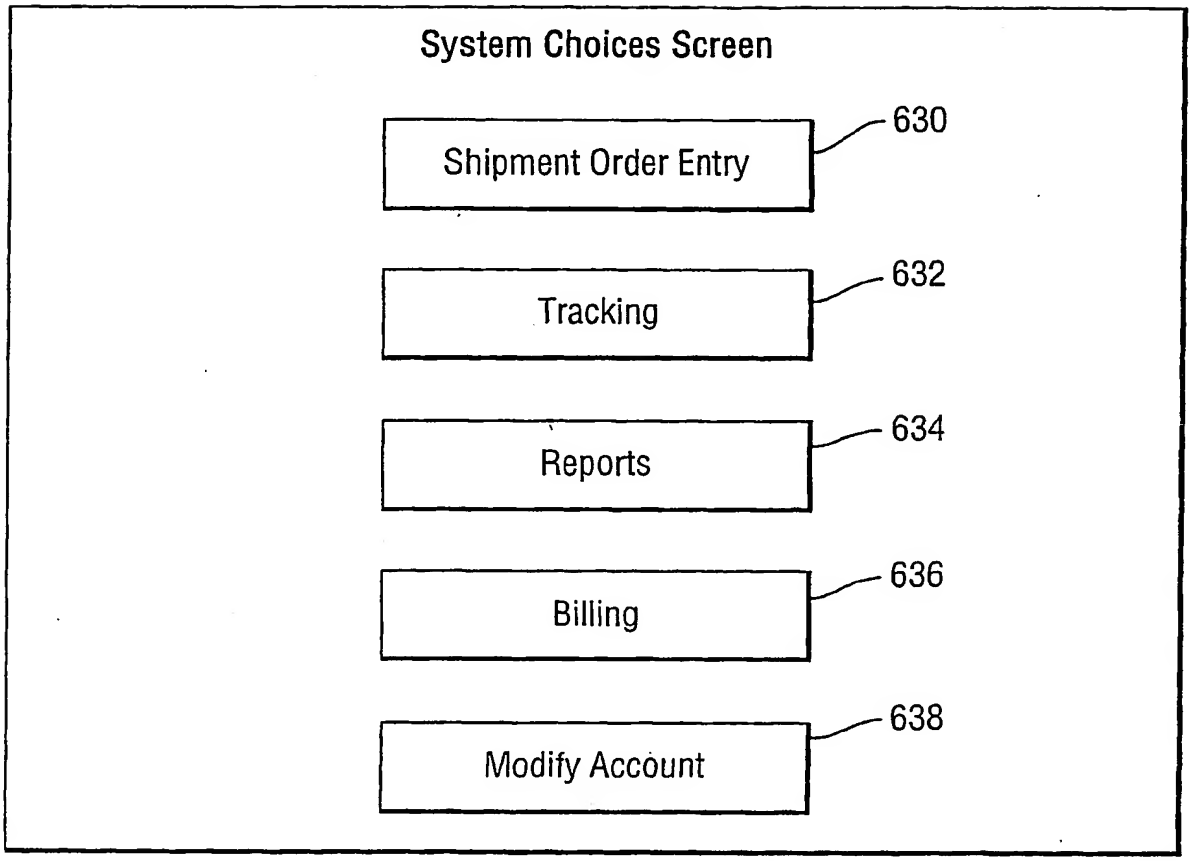
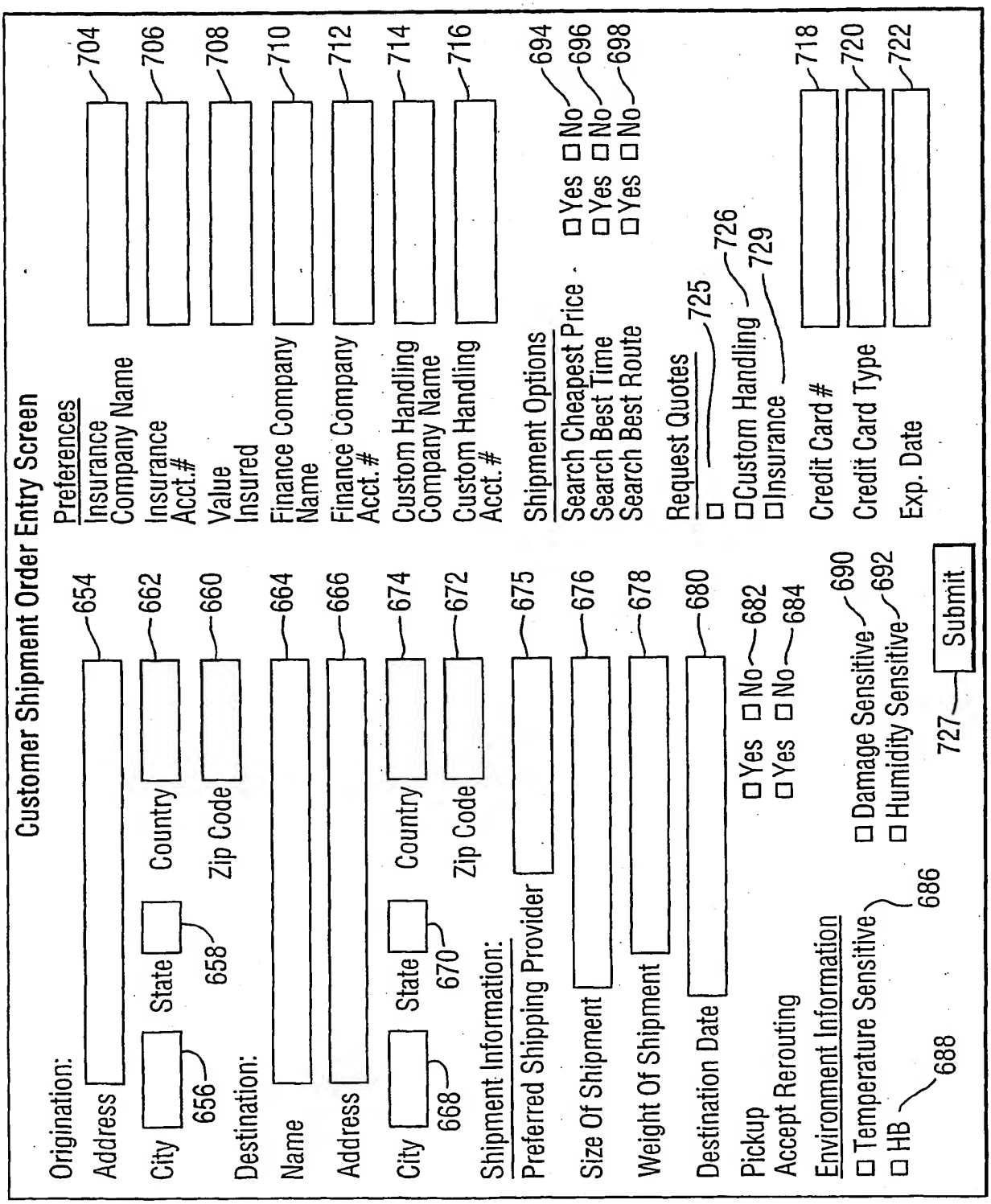

System Choices Screen
Shipment Order Entry
630
Tracking
632
Reports
634
Billing
636
Modify Account
638

Fig.14.


Customer Shipment Order Entry Screen
Origination:
Address
654
City
656
State
658
Country
662
Zip Code
660
Destination:
Name
664
Address
666
City
668
State
670
Country
674
Zip Code
672
Shipment Information:
Preferred Shipping Provider
675
Size Of Shipment
676
Weight Of Shipment
678
Destination Date
680
Pickup
Yes No 682
Accept Rerouting
Yes No 684
Environment Information
Temperature Sensitive
Damage Sensitive 690
HB
688
Humidity Sensitive 692
686
727
Submit
Preferences
Insurance Company Name
704
Insurance Acct.#
706
Value Insured
708
Finance Company Name
710
Finance Company Acct.#
712
Custom Handling Company Name
714
Custom Handling Acct.#
716
Shipment Options
Search Cheapest Price
Yes No 694
Search Best Time
Yes No 696
Search Best Route
Yes No 698
Request Quotes
725
726
Custom Handling
729
Insurance
Credit Card #
718
Credit Card Type
720
Exp. Date
722

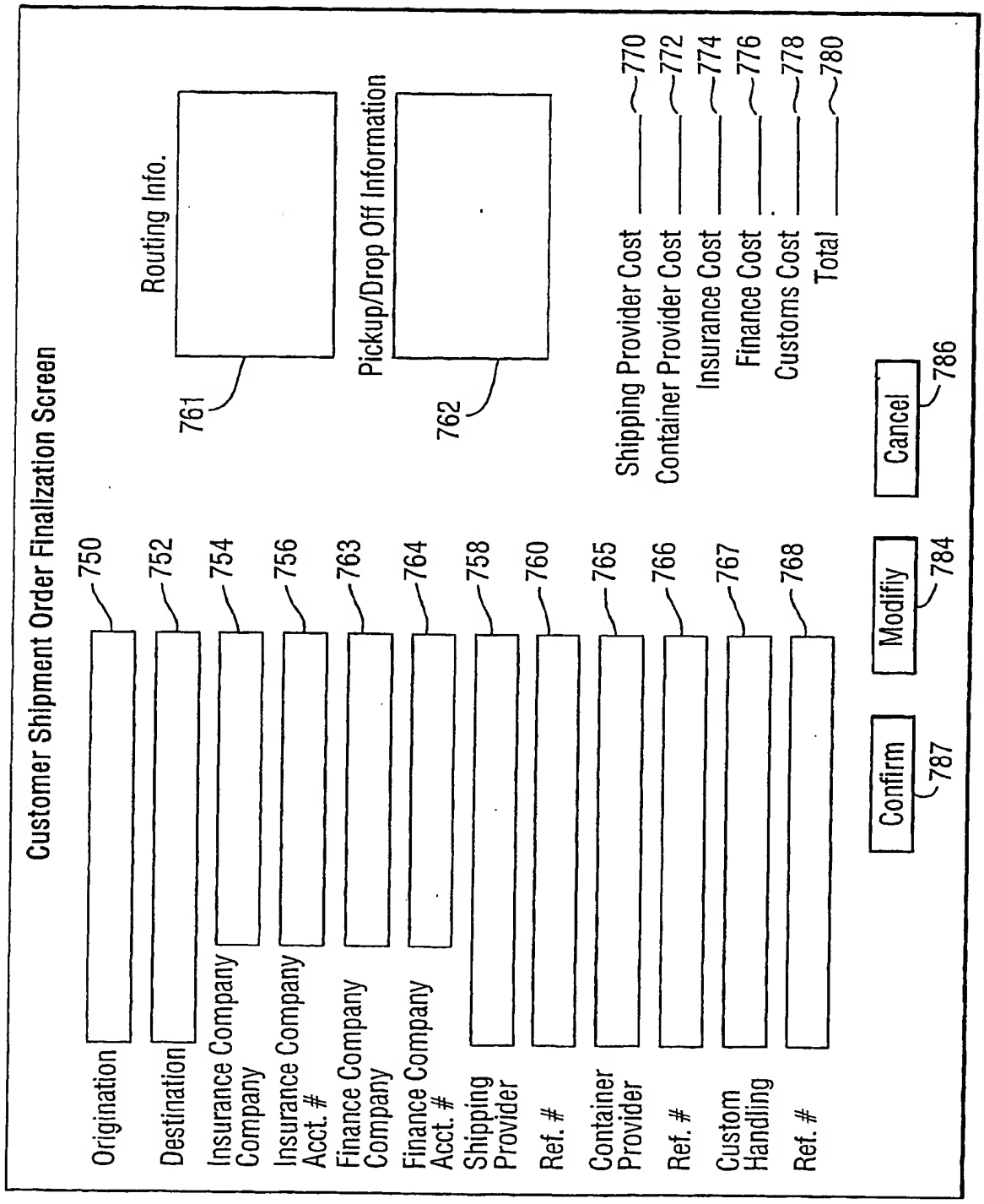

Customer Shipment Order Finalization Screen
Origination
750
Destination
752
Insurance Company Company
754
Insurance Company Acct. #
756
Finance Company Company
763
Finance Company Acct. #
764
Shipping Provider
758
Ref. #
760
Container Provider
765
Ref. #
766
Custom Handling
767
Ref. #
768
Routing Info.
761
Pickup/Drop Off Information
762
Shipping Provider Cost
770
Container Provider Cost
772
Insurance Cost
774
Finance Cost
776
Customs Cost
778
Total
780
Confirm
787
Modifiy
784
Cancel
786

Fig.15.

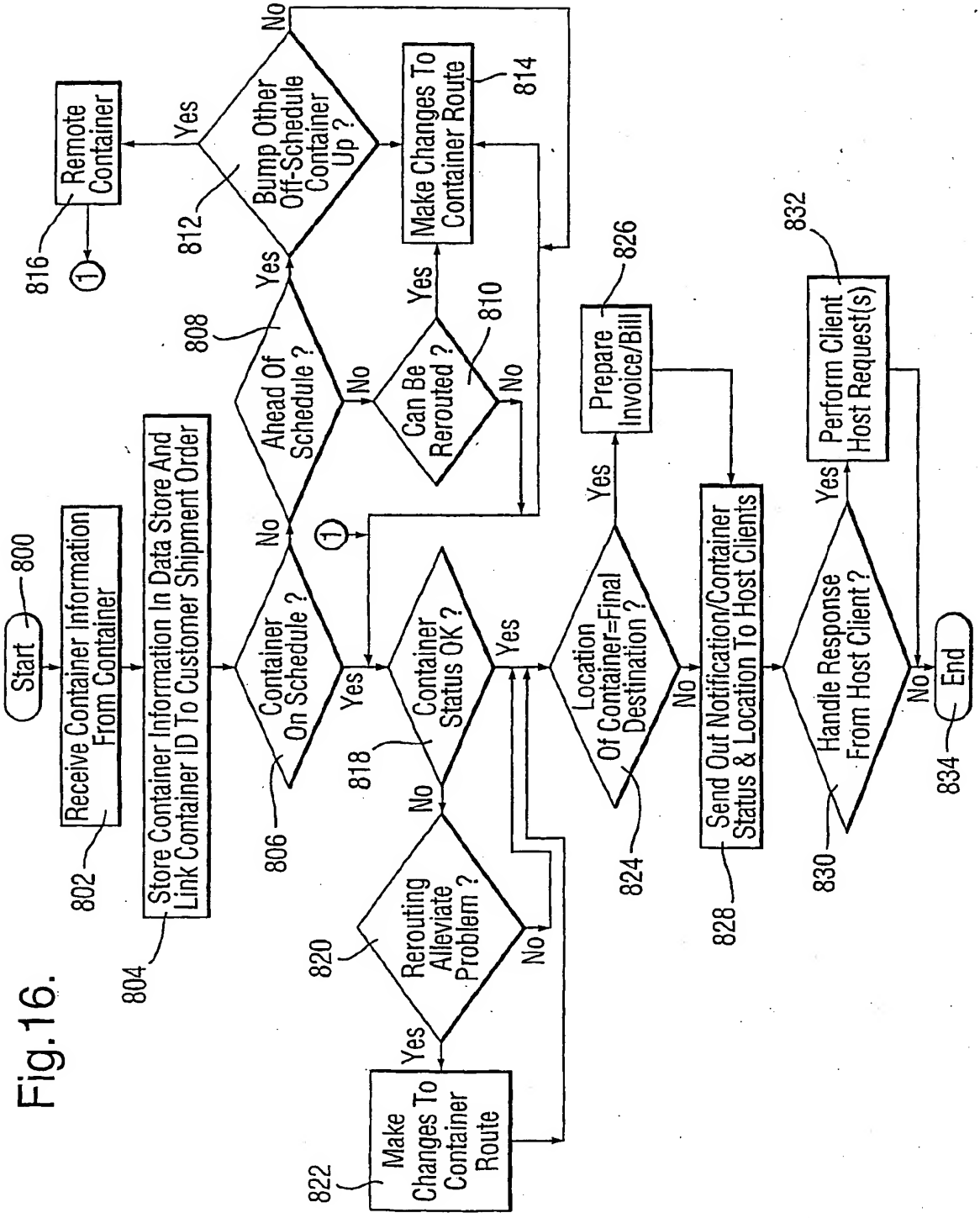

Start
800
Receive Container Information From Container
802
Store Container Information In Data Store And Link Container ID To Customer Shipment Order
804
Container On Schedule ?
806
Ahead Of Schedule ?
808
Bump Other Off-Schedule Container Up ?
812
Remote Container
816
Make Changes To Container Route
814
Can Be Rerouted ?
810
Container Status OK ?
818
Rerouting Alleviate Problem ?
820
Make Changes To Container Route
822
Location Of Container=Final Destination ?
824
Prepare Invoice/Bill
826
Send Out Notification/Container Status & Location To Host Clients
828
Handle Response From Host Client ?
830
Perform Client Host Request(s)
832
End
834
Yes
No
1

Fig.16.

Fig.17.

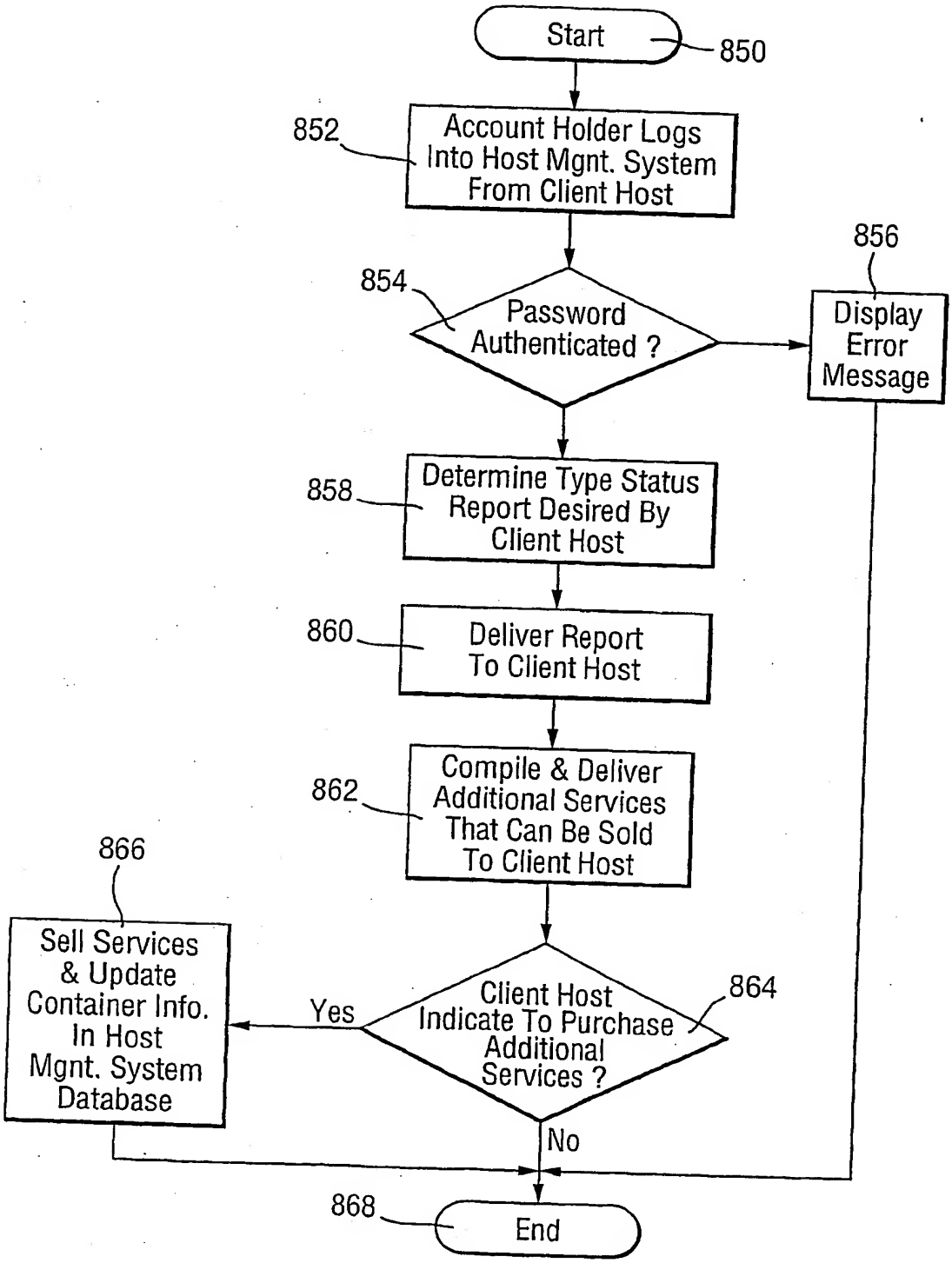
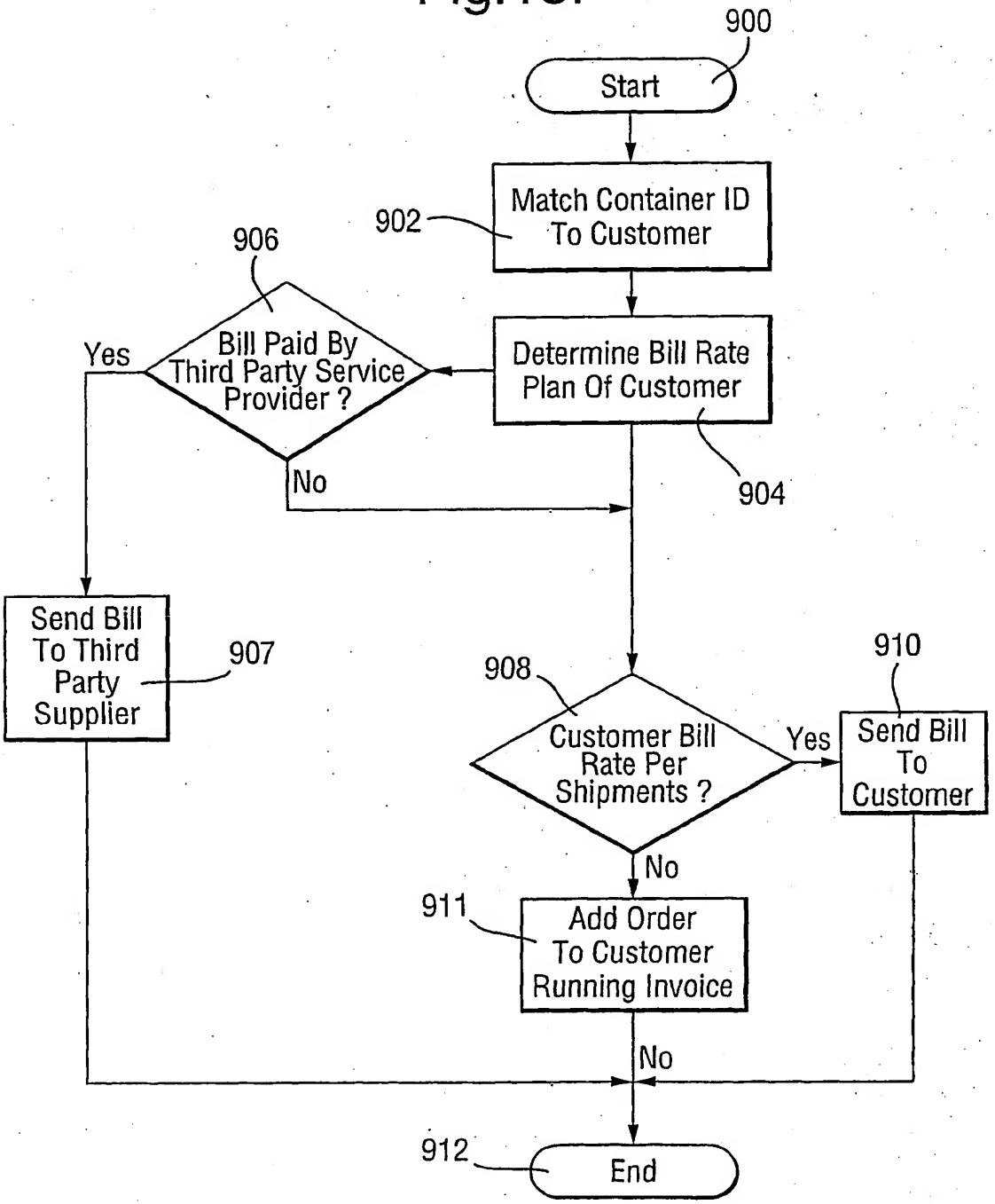

Start
850
852
Account Holder Logs Into Host Mgnt. System From Client Host
854
Password Authenticated ?
856
Display Error Message
858
Determine Type Status Report Desired By Client Host
860
Deliver Report To Client Host
862
Compile & Deliver Additional Services That Can Be Sold To Client Host
864
Client Host Indicate To Purchase Additional Services ?
Yes
866
Sell Services & Update Container Info. In Host Mgnt. System Database
No
868
End

Fig.18.


900
Start
Match Container ID To Customer
902
906
Bill Paid By Third Party Service Provider ?
Yes
Determine Bill Rate Plan Of Customer
No
904
Send Bill To Third Party Supplier
907
908
Customer Bill Rate Per Shipments ?
Yes
910
Send Bill To Customer
No
911
Add Order To Customer Running Invoice
No
912
End

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